The Orchadian

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Official Journal of the Australasian Native Orchid Society Inc.

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Prasophyllum atratum Photo by Peter Tonelli

The Orchadian

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Please include your contact information for communication and publication.

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Weekend	Monday	Tuesday	Wednesday	Thursday	Friday
1st Week		Townsville		Beenleigh	Toowoomba Victoria
2nd Week	Western Australia	Illawarra Kabi	Central Coast Geelong	Mackay & District	
Far North Coast (3rd Saturday)	3rd Week	Warringah		Macarthur & District	Sydney
Mid-North Coast (3rd Sunday)	4th Week	South Australia	Melbourne - Suburbs	Newcastle	

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The story of Australian and New Zealand orchids is intimately bound with the history of discovery and exploration. This issue begins with some early 19th Century field work by the botanist/explorer Allan Cunningham, includes some recent discoveries, and emergence of new hybrids, and ends with the most recent ANOS awards. There is a backlog of awards from 2016 to publish, with more to come in the March edition. The recent publication of the prolific letters and papers of Cunningham by Tony Orchard, a systemic botanist, has provided new opportunities to discover the orchid activities of Cunningham and his British associates. This highlights the high value of writing in diaries, journals and periodicals that are losing ground in the rush of the modern world. We lose a lot when people with much experience do not record it, whatever the reason. Writing has been around for 5000 years, from the cuneiform symbols of the Sumerians.

Brian Cox, in *Human Universe*, p. 164, 2014 (Harper Collins) puts it clearly: Writing... "*frees the acquisition of knowledge from the limits of human memory ...... and allows a practically unlimited amount of information to be shared around the world". The Orchadian* has a tradition of recording what is happening in the current scene, and reading earlier issues back to 1963 is very rewarding. It is a pleasure and privilege to publish in a factual and positive manner for a long-running periodical with a historical perspective, and know that your orchid experiences and results will continue to be shared and enjoyed in indefinite future time.

Peter Tonelli, co-author of *Orchids of Tasmania* (2000) describes his discovery of *Prasophyllum atratum* on Three Hummock Island off the NW Tasmanian coast, and his immediate action to preserve them from an unexpected threat. New orchid discoveries and their conservation don't come very often. Henk van den Berg assembles some of the best displays of orchids in Australia. He has written his account of an adventurous large stand for the 2016 ANOS Show and Conference, describing the rationale and techniques to carry off the feat. Mark Daniels has a new hybrid registration, *Dendrobium* Claro Sunset, and shows some recent results of the *D. speciosum*-style hybrid D. Claro Stars. These two crossings have produced a wide range of colour including some brilliant sunset shades, and Mark shares a little of his innovative approach to culture. The shorter articles on *D. affine, Phaius* and *Diuris* are all important records of activities in the eastern states. Articles from the west and north on orchids of these regions would be very welcome.

ANOS Inc. has had limited resources to award Australian orchids, due to the constraints of a vast country. Dave Groffen reports on the significant number of people who have recently completed training in New South Wales and Queensland, and the new panel in Victoria that has also created new judging opportunities. The Victorian panel judged its first awards in the 2016 spring season. Forty judges attended the ANOS Conference and Show in Kempsey. There is still no coverage in some regions and we look forward to more growers receiving the recognition for their best plants.

It has been an active year for *The Orchadian* with an increased number of contributors and people supporting production. Special thanks to Keith Riseley for his IT assistance in the last four issues, and to the team gathering material and reviewing.

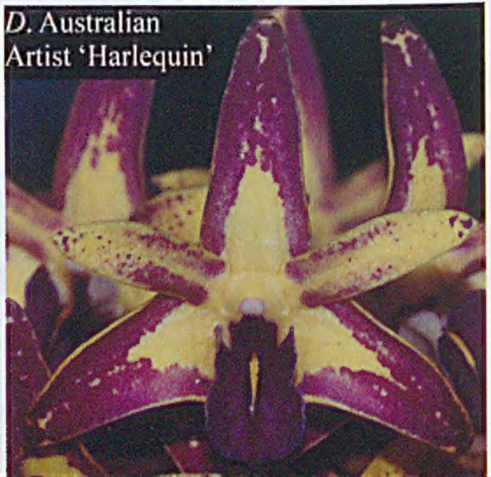
An omission from the last edition was the attribution of the photograph of *D.* Pee Wee 'Keith' to photographer Jorn Villien on p. 426.

Below and on page 445 is a selection of plants that were a highlight for me in 2016.

Peter Adams

D. Yarra Moon 'Butterfly'

D. kingianum 'Fire and Ice'


D. Australian Artist 'Harlequin'

President's Report

It has been a busy year for ANOS Inc., with a successful triennial Conference and Show at Kempsey, and a plethora of awards, helped by an enlarged judging group. A link to all awards is available on the website. The judges train long and hard for their qualifications, and we thank them for their dedication. Discussions are underway regarding the next conference, and we will keep you informed about progress.

The website coordinators have been at work on an updated website, which has now been launched. Give us your feedback on the new look, and use the links to let us know of any suggestions for added online resources you would like to use. More features will be added over the next few months, so keep checking the site. There is also a new Facebook page, and the link can be found on the website. To enable us to communicate with you more easily, please let the secretary know your email address if you have not already supplied it. Council aims to keep individual members informed of events and issues as they arise, and direct email is the quickest, cheapest and most reliable way to achieve this.

The ANOS Travel Club led by John Zietsch and Ray Clement organized a very successful spring tour to Western Australia for a small group of members. Andrew Brown from Perth led the bus tour and many spectacular species were found and photographed. Glowing reports from participants have been received, and members will be kept informed when plans for another orchid trip are underway, as there were a number of people disappointed to miss out.

The Orchadian production team, led by Peter Adams, continues to provide informative, high quality articles which require many hours each quarter to prepare. Please encourage your friends to become ANOS Inc. members by subscribing if they do not do so already.

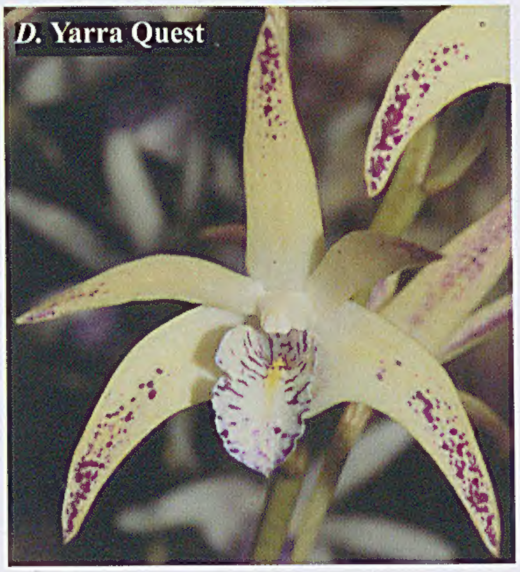
How was your orchid season this year? When I reflect on what that means I realise that there is no such thing as a single season - orchid activities and flowering are all year round. Orchid repotting starts late spring to early summer in the southern states and usually ends with the onset of cool weather in autumn, or when I lose enthusiasm for the large task. Over summer Aeridinae (Sarcanthinae) species and hybrids last right through until Christmas in cool southerly conditions in Melbourne. The three Australian *Cymbidium* species and their hybrids flower over summer, and then the autumn terrestrials begin. *Dendrobium bigibbum* season and the hot/cold hybrids are flowering in May and through winter. Because of the strong *D. tetragonum* influence in many *Dendrobium* hybrids, there is no gap before the spring flowering starts, the busiest time for us down south. The only things that are dormant over summer are usually orchid meetings.

For keen orchid growers, life is dominated by these cycles. When to take holidays, how to get to interstate meetings and shows, when to fit in field trips, when to be home to nurse newly deflasked seedlings. There is no orchid 'season', just life with orchids.

It has been a long cool winter and flowering times have been erratic, while some species such as *D. speciosum* had a bumper flowering year down south. November has been cool and overcast in Melbourne, so the growing season has been delayed for dendrobiums, and few new canes are appearing in my orchid house. I expect it will be a short growing season here. Bushfires are predicted to be bad, and we think of our members in New South Wales who have had their homes under threat already.

On behalf of Council, I wish you and your loved ones a safe and enjoyable Christmas season.

Sheryl Lawson


D. Yarra Quest

Creating a Display of Outstanding Australian Orchids

Text by Henk van den Berg
Photographs by Peter Adams

About 35 years ago when I became interested in Australian orchids they were displayed at ground level as backdrops for cymbidiums and mixed genera at most orchid shows. Judges and the public were reluctant to bend down and judge and appreciate the plants, that rarely received the status of champions of shows etc. I started growing orchids in my late 30s after building a collection of stag, elk and other ferns.

After attending orchid shows as a spectator I got the idea of adding native orchids to my mostly green plants to create a colourful mix of flowering plants with ferns. As my culture and purchase of orchids improved I joined several societies and started to bench and show some plants. As my quality of orchids increased and my rewards of winning a few ribbons and certificates increased I saw the potential of displaying native orchids as a sole entry, as long as they could come off the ground and into the eye level of the judges and public alike.

My background at work as a production planner with colours in my early work days at Bradmill Cotton Textiles in Maitland gave me a good understanding of mixing colours as the bulk of my work was associated with the weaving of modern textiles used for curtains and furniture coverings, and colour was the most important aspect of being successful in the business.

I decided that the displaying of native *Dendrobium* hybrids was the best course of action for me to take to create my first display, because of the colour variety. I improved my quality of display orchids by purchasing seedlings from well respected hybridizers. In the early days there were Ken Russell, Sid Batchelor, Reg Sheen, Bill Skillicorn, John Purvis, Ray Clement and Neil Finch. More recently I obtained plants from Wayne Turville, Wayne Perrin, Chris Pegg, Michael Wood and Michael Drobski. My displays improved in visual appearance because of the increased quality and different appearances of each cross enabled me to produce a better mix and match of colours and shapes in my displays.

Early on the displays were of smaller plants on one circular eye level table. As my plants increased in size I progressed my displays to 3 circular tables using different heights. Mainly using hot/cold hybrids I staged these displays in August at St. Ives and at the Melbourne Spectacular.

The table height of displaying native orchids at eye level has , I felt, increased public acceptance of these 'little gems', and even judges seem to appreciate them more as I have had some recent rewards by gaining show winners and awards.

Concept and Objectives

I have developed the display concept further to include large specimen plants, and cooler growing plants that flower in September. This year I was asked to stage a large display at the 18th ANOS Conference and Show at Kempsey. I wanted to create a larger stand than previously at a time when later flowering, large cooler growing orchids (pots up to 300 mm diameter) were available. Tall specimen sized plants at the top of the display reached240 cm or more above ground level, with a sloping contour down to the front with floral displays at eye level and below. At the back of the stand more tall specimens were benched at eye level. Each plant was spaced so that as far as possible, flowers are visible from all directions. Most were benched in hollowed out varnished *Eucalyptus* trunks. Plants of *D*. Avril's Gold, *D*. Class and *D*. Greta Snow formed the highest tier.

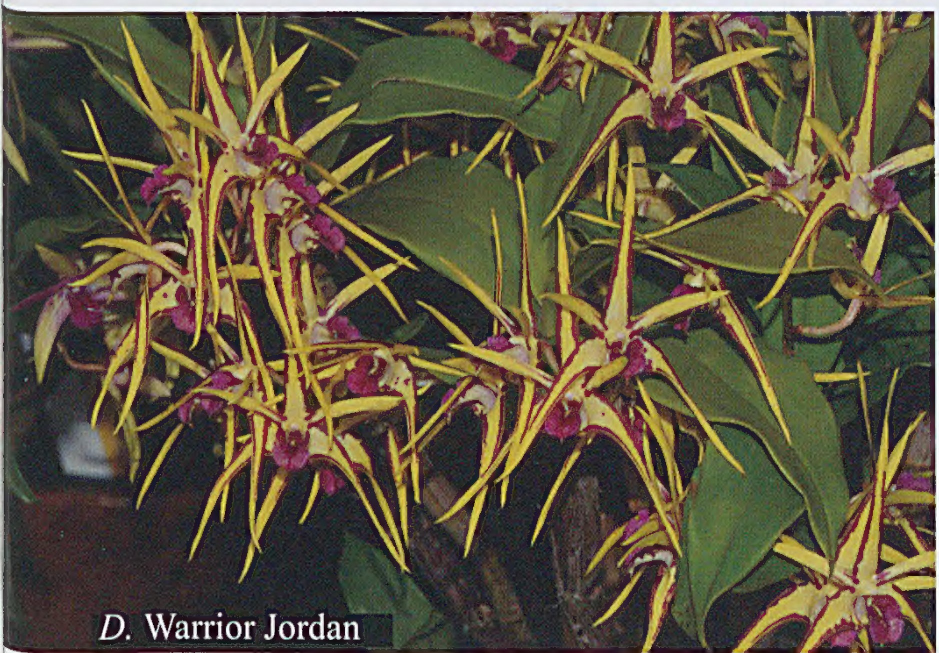
Transport

A Ford Transit and trailer were needed to carry the exhibited supporting materials. Plants were carefully packed in plastic crates which don't slide around and are designed to take different pot sizes. This prevented travel damage. The big plants carried well in the hardwood containers.

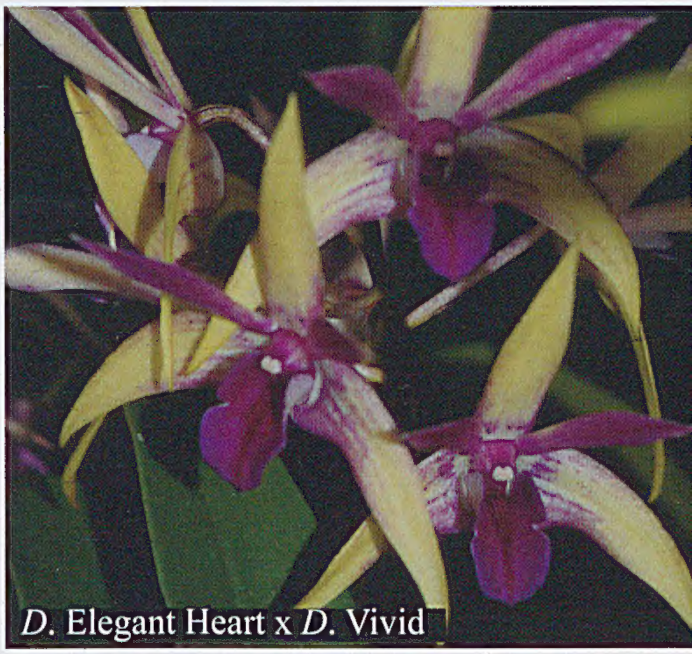
Staging

I have a system of round-topped tables that can slide under one another to vary the total area of display, and they have adjustable legs to vary the height. A group of round tables formed the lower

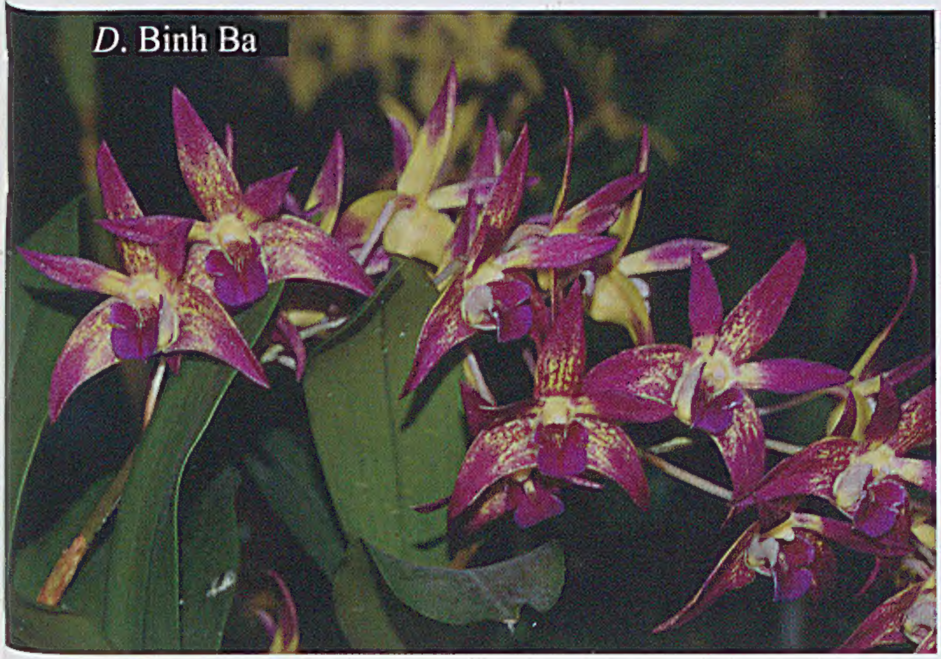
Henk van den Berg's stand at the 8th ANOS Conference



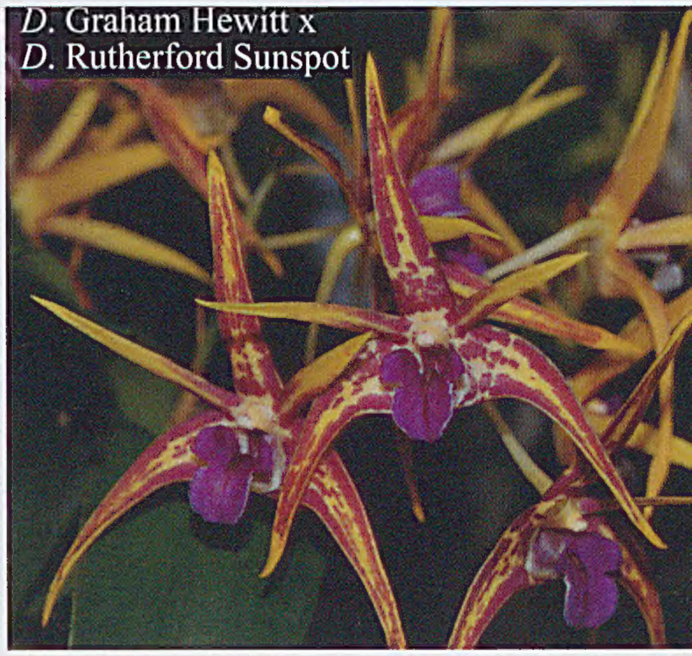
D. Warrior Jordan



D. Elegant Heart x *D.* Vivid

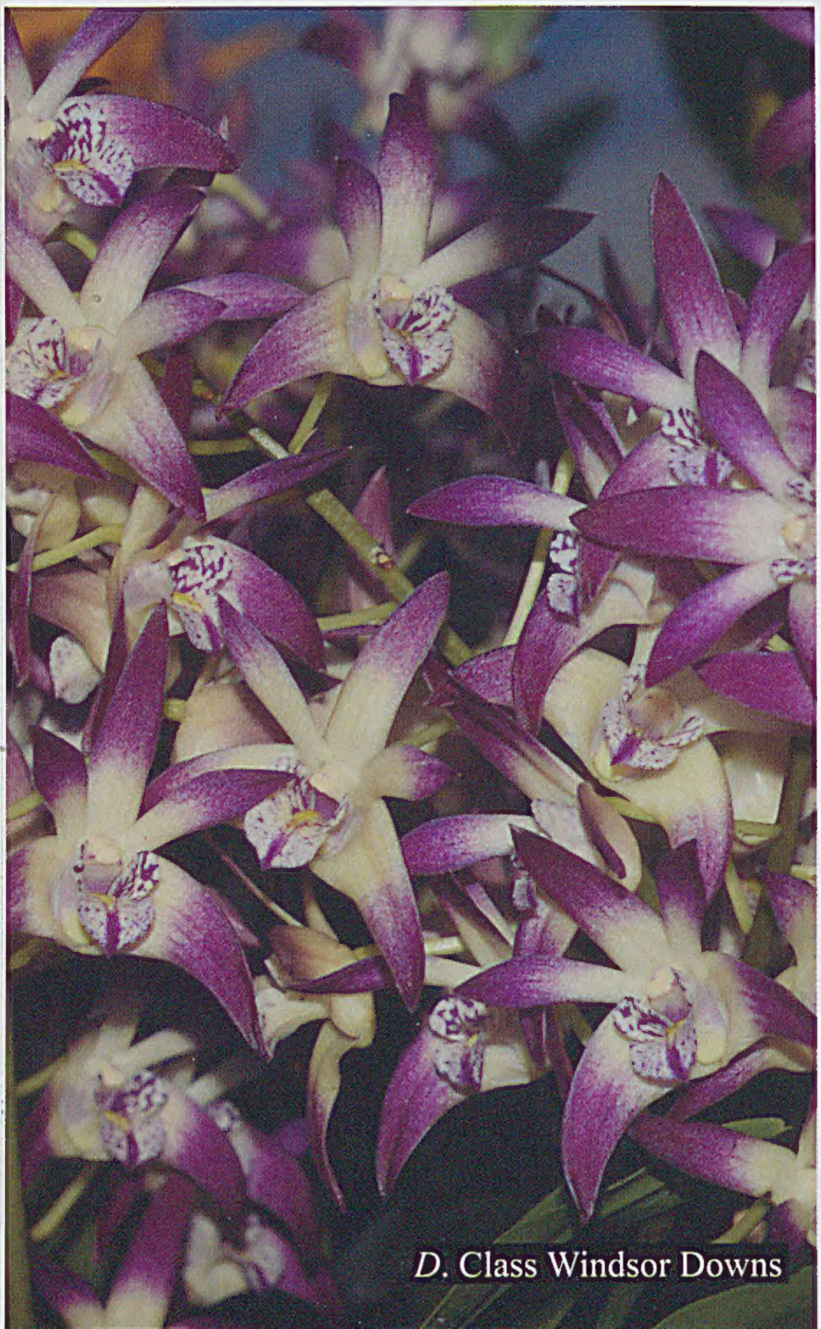


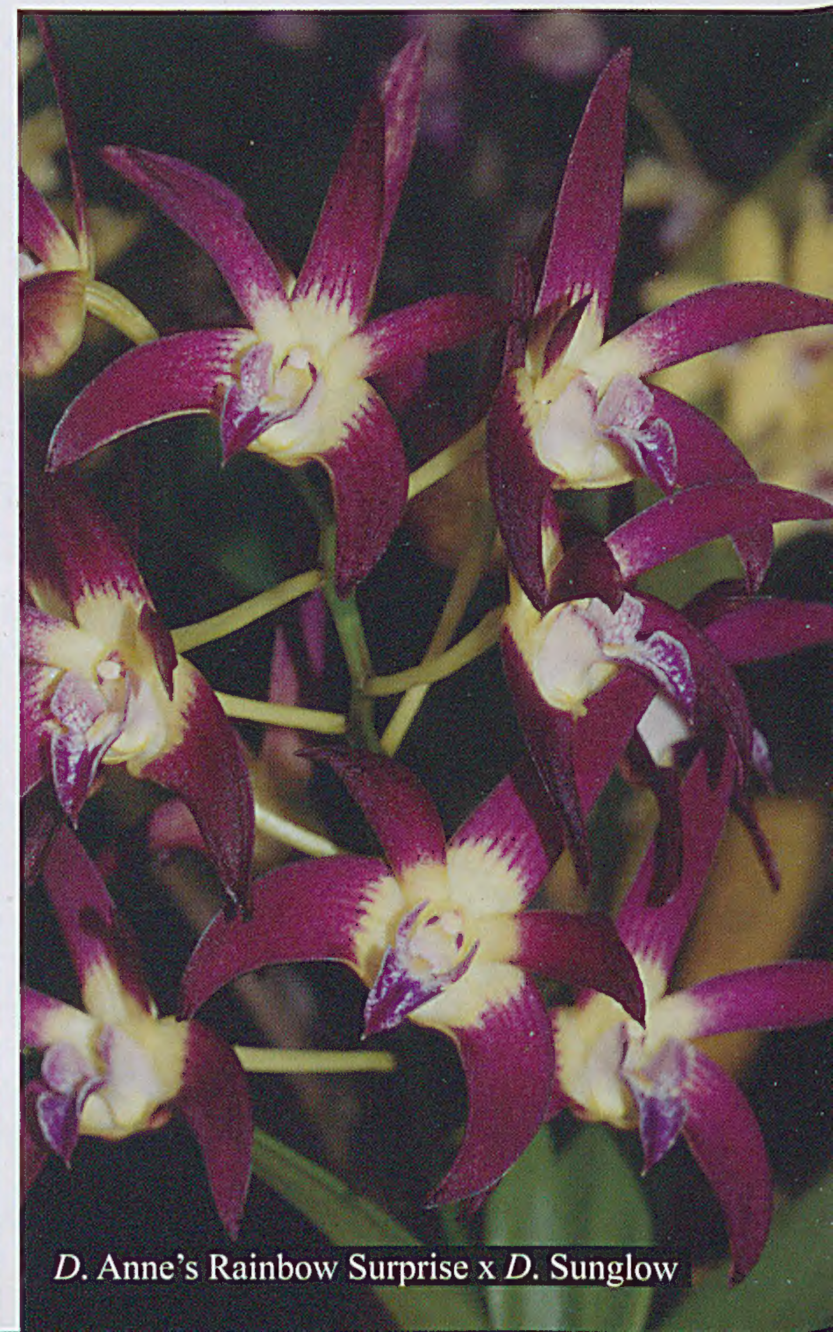
D. Binh Ba



D. Graham Hewitt x
D. Rutherford Sunspot

Henk van den Berg in front of his stand


D. Class Windsor Downs


D. Anne's Rainbow Surprise x *D*. Sunglow

and bottom slopes of the display. The tables were finished with *Tillandsia* and black crushed velvet.

Plant Selection and Planning

Planning begins a few weeks from the event, with a peak in the last week. Plants are selected for height and colour in the last few days. I make a partial mock up in the garage, starting with the larger plants at the top of the display, and drawing a diagram of how the smaller plants will be displayed, and how much table area is needed. There is no need to make a complete display at this stage, as it may be somewhat different on the day. It was important that I know what plants I start with at the back.

At the show it is best that the plants are not moved once in place, at least not without my direction, as they may become precarious and difficult to relocate. At the end of the show dismantling takes time and it is best to have help with plant security during dismantling of the stand and packing the van.

A display of this size is a big challenge but the questions, comments and appreciation from the public and growers makes the effort very worthwhile.

Acknowledgement

Thanks to Peter Adams for assisting in the writing and photography for the article.

Henk van den Berg has been a high level exhibitor for many years. His main reward is gaining acceptance for his displays of Australian native orchids. Although it is early days, the future looks bright for creating these displays.

D. Memoria Alicia

D. Robbie McInnes

Now That Looks Different! The Discovery of *Prasophyllum atratum* on Three Hummock Island

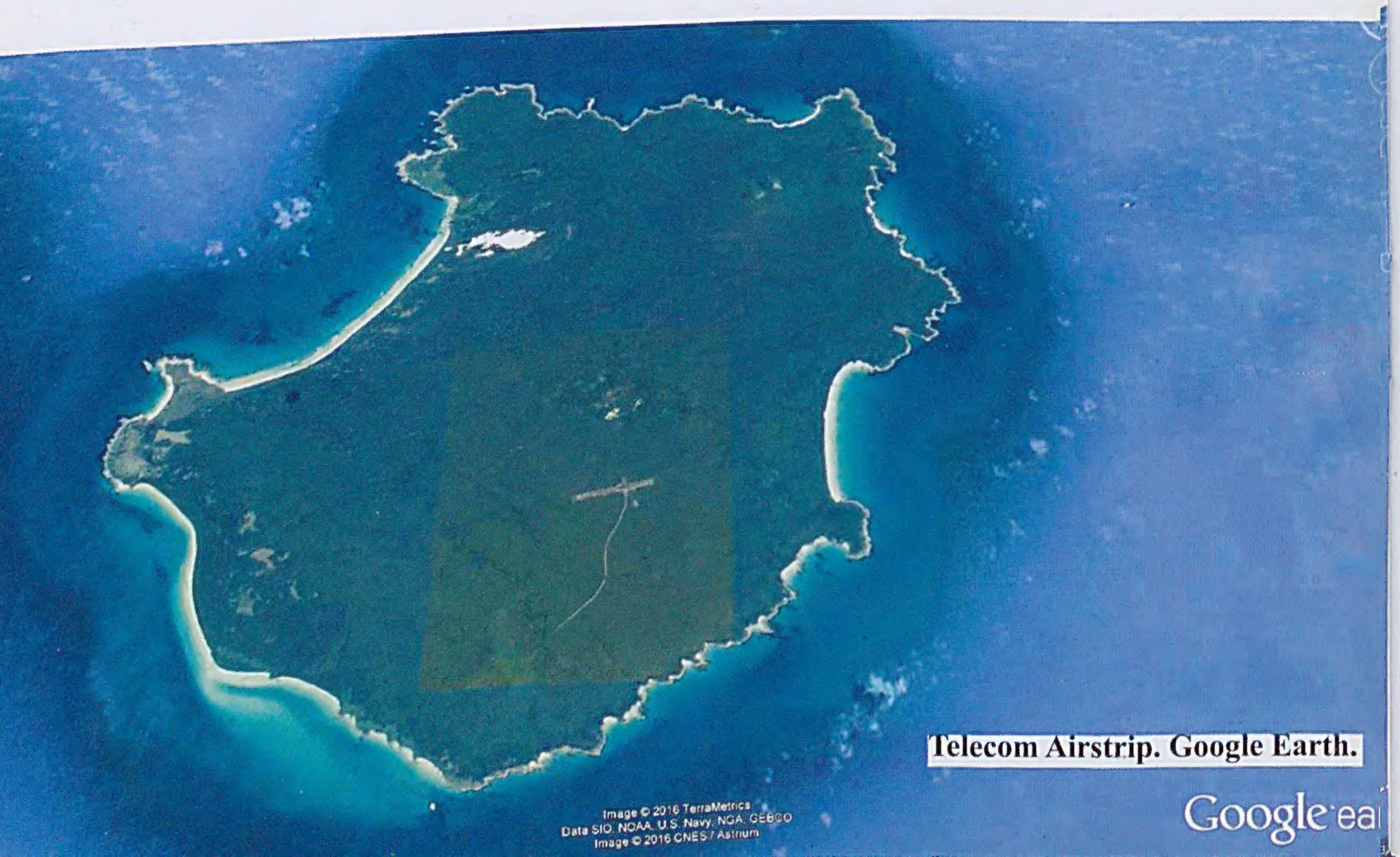
Text and photographs by Peter Tonelli
tasnature@dodo.com.au

In late 1798 under the orders of newly appointed N.S.W. Governor John Hunter, explorers and friends George Bass and Matthew Flinders set sail south in the 25 ton sloop *Norfolk*, with the intention to circumnavigate Van Diemen's Land, proving it to be a separated land mass from the mainland. After reaching the north-eastern point of Tasmania they sailed westward. Nearing the NW corner of the island in December their passage was challenged by the appearance of an archipelago of three islands , later to be named by Flinders as the Fleurieu Group , namely 'Barren' or Hunter Island, Robbins Island and Three Hummock Island. Three Hummock Island is a 70 km^2 granite island, named because of its three prominent hills, North, Middle and South Hummock, the highest with an elevation of 237 m.

Since 1980 I have enjoyed the company of likeminded orchidologists with occasional visits to both Hunter and Three Hummock islands, mainly to view the majestic leafy greenhood, *Pterostylis cucullata* R.Br. The two islands are very different, the former being long and flat approximately 14 km long and 5 km wide, with vegetation of predominately windswept low heathland and vegetated Holocene dunes. Three Hummock lies to the left of Hunter Island, separated by a narrow channel and afforded some protection from the constant pounding westerly gales of the Indian Ocean – referred to as the' Roaring Forties' by most seafarers.

Soils of Three Hummock Island are Quaternary sand and clay deposits, Precambrian metaquartzite and politic sequences, mostly deep organic sandy soils, forming plains, sedgeland and closed scrub with open heathland. There are two basic airstrips on the island plus a substantial sheltered wharf close to the homestead at Chimney Corner. The 'Homestead' airstrip is heavily grazed by many species of macropods, including the introduced eastern grey kangaroo, along with impressive flocks of native Cape Barren geese.

The other landing strip is altogether different, situated near the base of South Hummock. The Telecom airstrip, as it is referred too, consists of a fine quartz loam previously maintained by the Australian Government, originally graded from a prime flat section of heathland scrub back in the 1950 when a radio communications link was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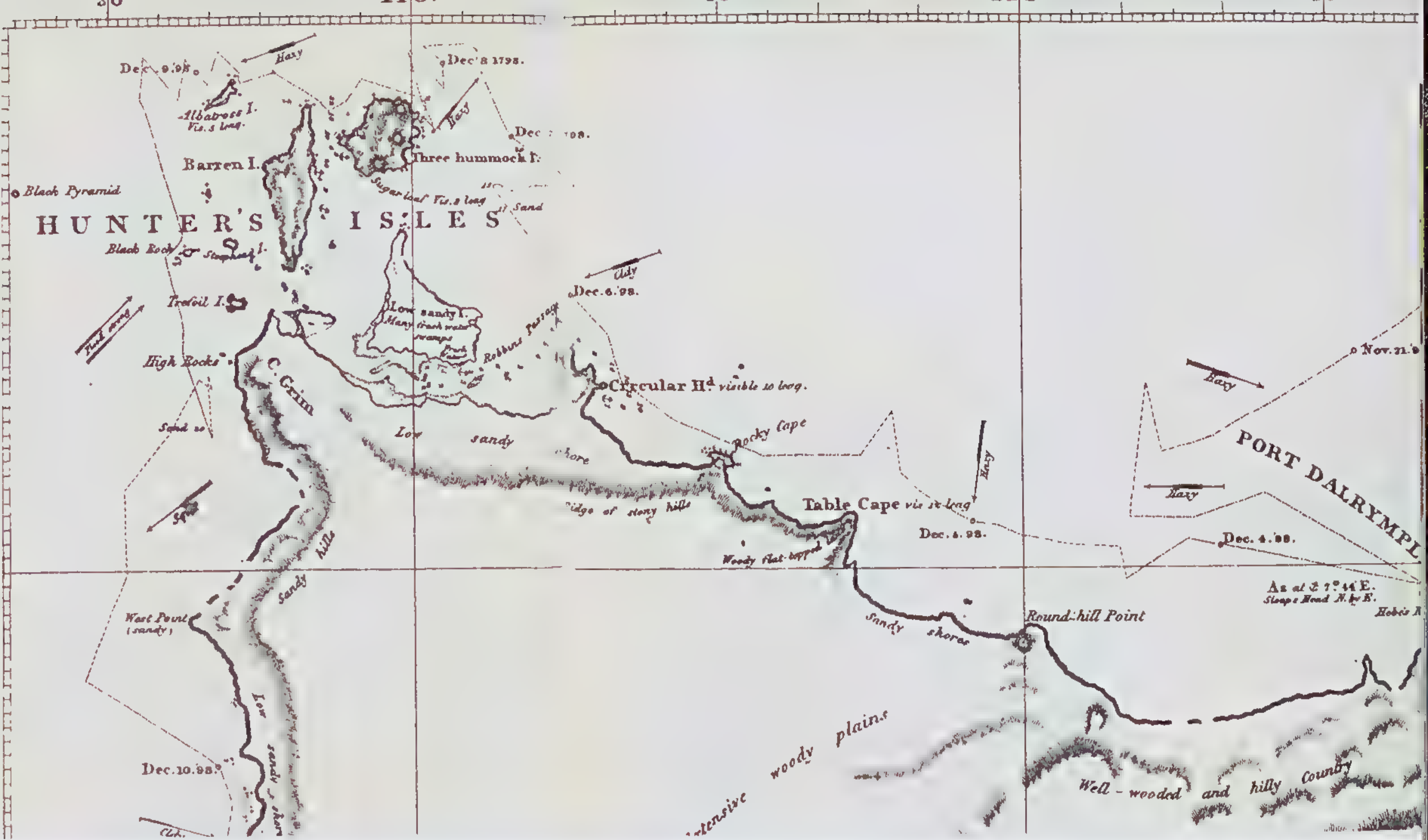
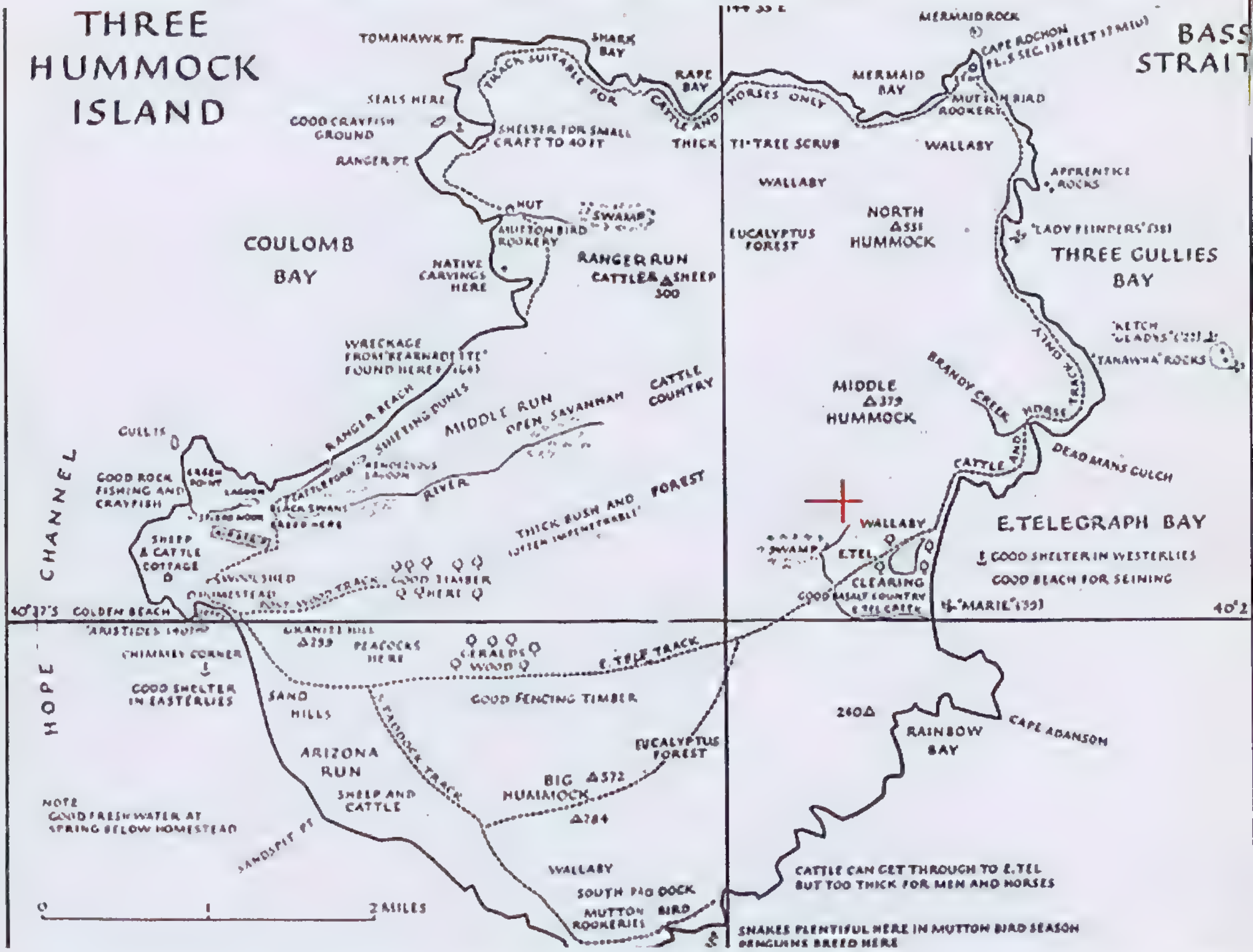
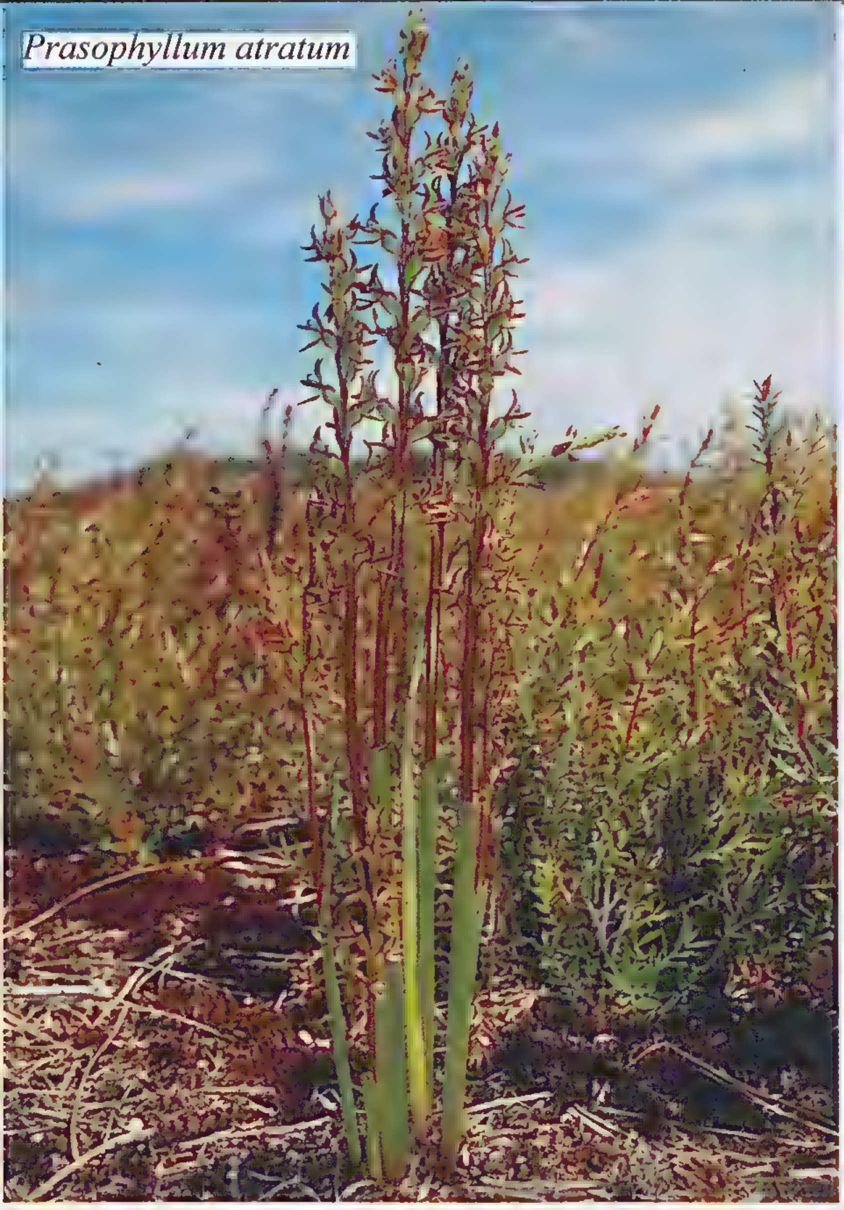


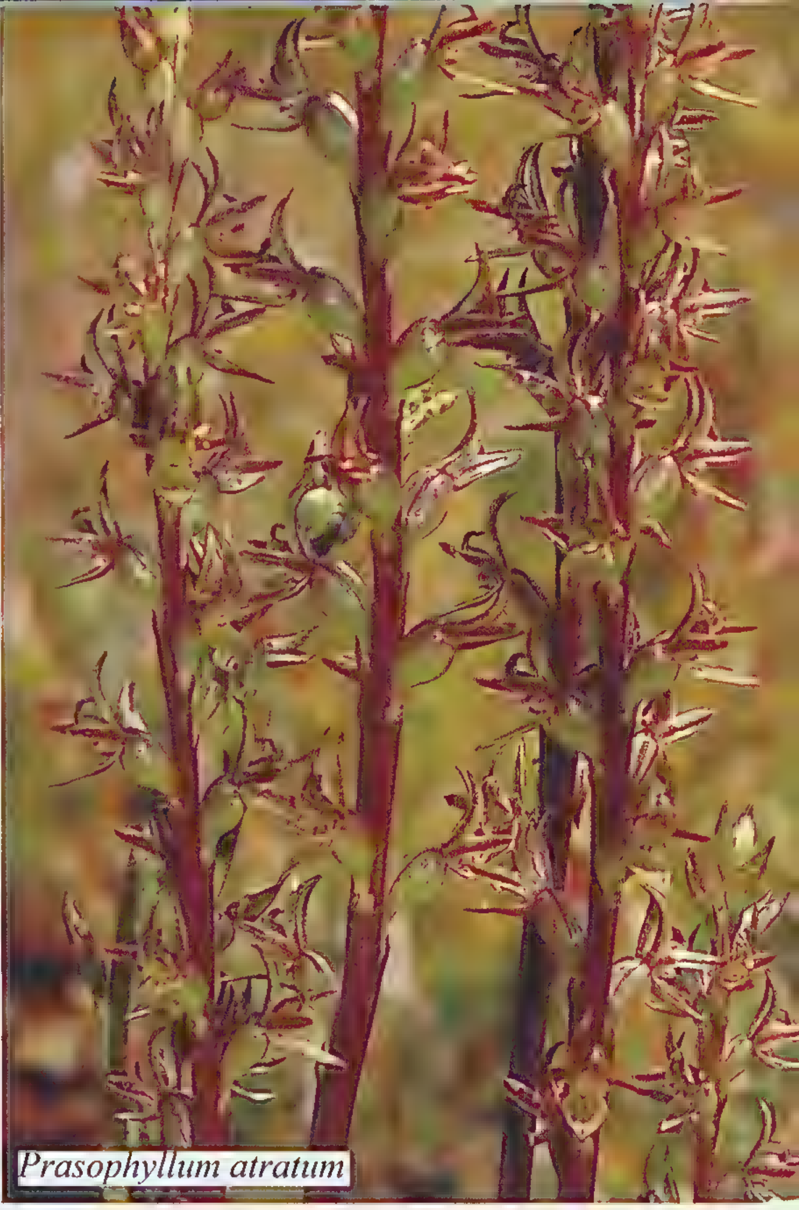
Hunter Islands. From *Escape to an Island* by Eleanor Alliston. William Heinemann, London 1966.



Three Hummock Island. From *The Voyages of Matthew Flinders* by Max Colwell. Paul Hamlyn P/L 1970.



Prasophyllum atratum



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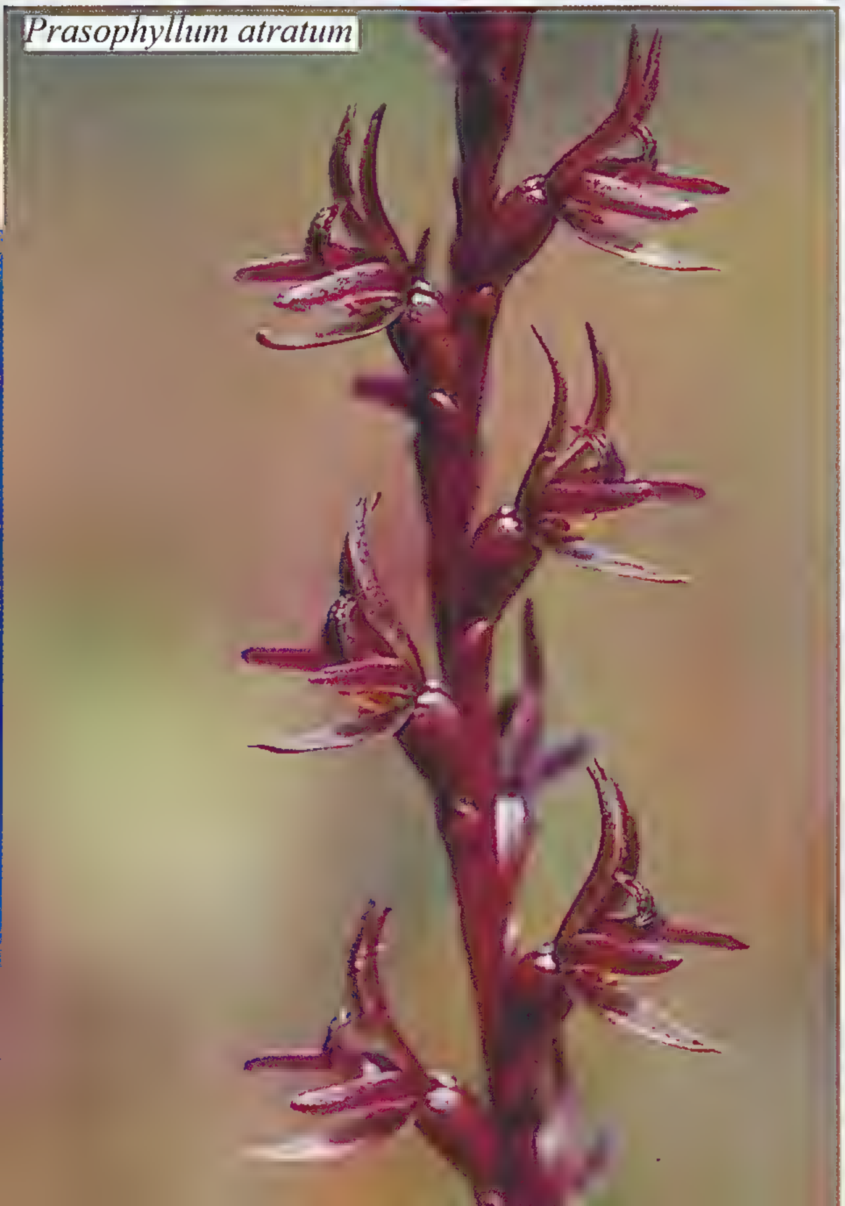
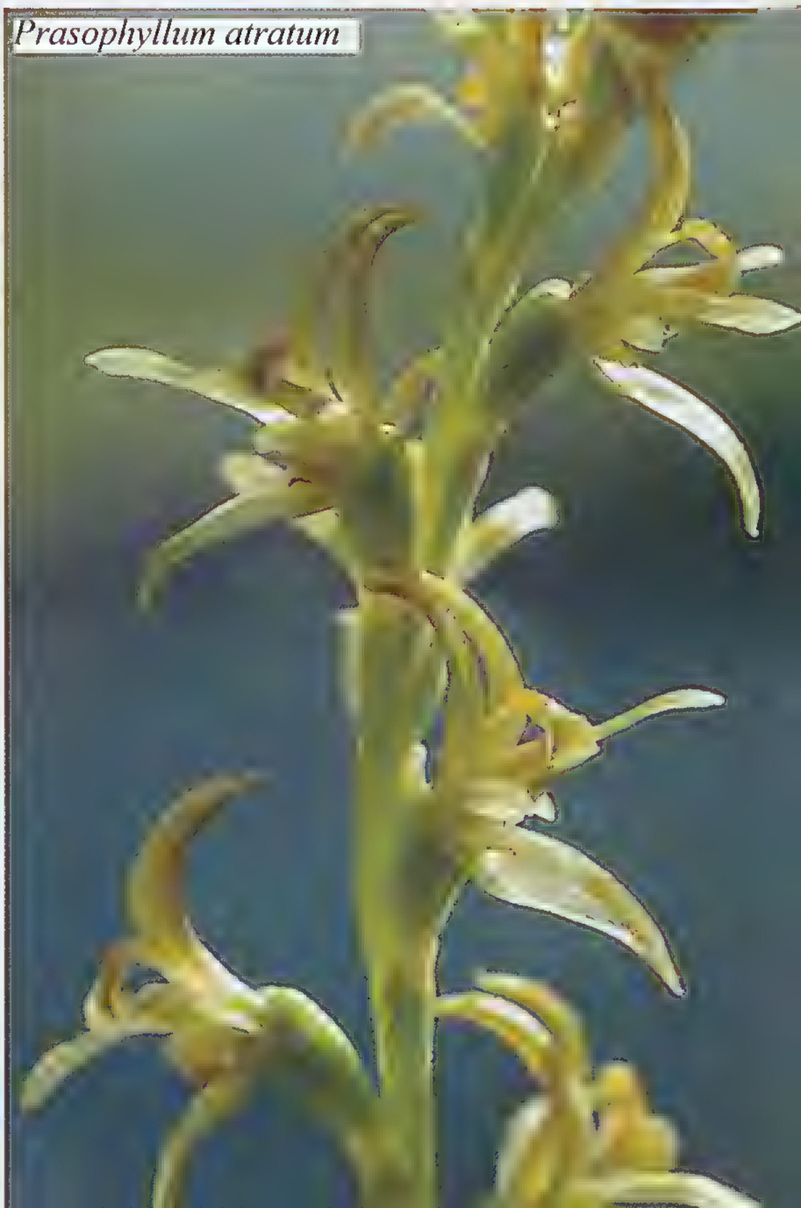


Prasophyllum atratum



Prasophyllum atratum

established between Tasmania and the mainland via King Island. The once imposing tower and transmitter dishes now lay abandoned and rusting at the top of South Hummock, denying even the wedge-tail eagles a choice observation point.

In November 2000 I conducted a weekend adventure course for Adult Education (division of TAFE) especially designed to study *Orchids in Isolation* on Three Hummock Island for any noticeable changes in orchid morphology since Tasmania became isolated at the end of the last Ice Age, 12,000 years ago. This period of isolation has given rise to a considerable number of endemics, particularly amongst genera with a high numbers of species, for example *Caladenia, Pterostylis, Thelymitra* and *Prasophyllum*. It was one of the latter, a *Prasophyllum*, that contributed to the endemic count for Tasmania.

While waiting at the Telecom airstrip for the single engine Cessna to arrive and return the group to the mainland of Tasmania, it is common place to kill time wandering randomly over the degraded soggy airstrip, covered with a generous build-up of mosses and short ephemeral plants. Breaking through this 10 cm organic layer is a hard pan of compacted fine gravels.

One of the students drew my attention to a tight clump of *Prasophyllum* (leek orchids) well camouflaged amongst the marginal vegetation along the perimeter of the airstrip, the first of this genus we had found on the island. Having had previous experience with the complexities of this genus my immediate thought was '…that's different!', and immediately set about collecting specimens to send to David Jones at The Centre for Australian National Biodiversity Research, Canberra.

A prompt reply came back of an 'undescribed species' within the recognized "*P. pyriforme/ occidentale'* group Rouse D.T. 2002, with an overlapping tendency towards *P.fuscum/frenchii*". After a time delay in processing this find, the discovery was then published along with other Australian orchid discoveries in *Australian Orchid Research* (*Aust. Orch. Res*. 5: 144, 2006). It was named *Prasophyllum atratum* D.L. Jones, the Three Hummock leek orchid.

The new species is currently listed as Endangered (Threatened Species Protection Act 1995 (Tasmania): April 2016) because of its unique location and specific habitat requirements. A follow-up survey was done in November 2008 by the Department of Primary Industry, Parks, Water and Environment (DPIWE) orchid recovery project officer Mathew Larcombe and volunteers. It revealed 500 –1000 mature individuals were present over approximately 8.5 ha, with an additional individual beside the road around 240 m south of the airstrip (DPIWE data).

The species is conventionally accepted as *Prasophyllum atratum* (Three Hummock leek-orchid). It was previously considered to belong to *Prasophyllum pyriforme* (graceful leek orchid) which is no longer recognized as occurring in Tasmania. The Three Hummock Leek-orchid is a small, fleshy, terrestrial orchid with a solitary erect leaf that is 12–40 cm long and 3–5 mm wide. Flowers are widely spaced to moderately dense along a flower stem 15–30 cm tall. Flowers are brownish-green to purplish-green in colour with a dark purple labellum, 4.5–5.5 mm long, broad at the base, constricted and sharply recurved near the middle and with a tapered point. The petals and sepals are 5–7 mm long.

In 2010 the only known site was on the cusp of being destroyed, the EPBC Act Listing Status mentions … 'the main threats to the Three Hummock leek-orchid are inappropriate airstrip maintenance activities and inappropriate disturbance'. By chance I was visiting Narawntapu National Park in northwest Tasmania in late 2014 and was chatting to one of the park rangers who was repairing a large boom-spray unit. He casually mentioned that he was preparing it to go to Three Hummock Island to eliminate the ephemeral vegetation on the Telecom airstrip, prior to it being graded and widened to accommodate twin engine aircraft – a request from the Civil Aviation Safety Authority. No way! - quick phone calls were made to DPIPWE Threatened Species Unit and the action was immediately cancelled, thus avoiding potential destruction of the only known population of *Prasophyllum atratum* - a close call!

Later examination of photographs of other *Prasophyllum* at the island site brings me to the conclusion that further observations may lead to ongoing exciting discoveries on this and adjacent islands in the Hunter Group.

Further Reading

Alliston E 1966 *Escape to an Island.* William Heinemann, London.

Internet Resources

www.threatenedspecieslink.tas.gov.au/prasophyllum-atratum

http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=82677

Peter Tonelli is a co-author of *Orchids of Tasmania* and Hon. Warden 'Henry Somerset (Orchid) Conservation Area', Latrobe, Tasmania.

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W [illegible]

The Australian and New Zealand Orchids of Allan Cunningham

Peter B. Adams
gallangowan@optusnet.com.au

Introduction

Allan Cunningham (1791-1839) was the first botanist/explorer to spend a long period in Australia, about 18 years from 1816, and to make a systematic study of orchids in the Australasian region. His contributions to exploration, discovery of new orchid species and to distributions of many species has been under-appreciated. He was sent out mainly to collect and document seeds, live plants and bulbs for the King's Garden at Kew and his herbarium specimens needed as vouchers for these collections have been material for many botanists for 200 years. Orchids were a particular personal interest, many illustrated in *Curtis's Botanical Magazine* and other periodicals since 1830. The adverse conditions of his life in New South Wales, his recall to the colony in 1836 after the death of his brother and his early death at 49 from tuberculosis and pneumonia prevented him writing much of the detail of his discoveries.

There is a section on Orchidaceae in his sketch of the New Zealand flora, published by William Hooker in English periodicals, and there are various scattered notes on species in his journals, diaries and letters, the latter recently collated and published (Orchard & Orchard 2015).

He moved to England from 1831–36 and worked on his collections, intending to write a flora of Australia which never eventuated. About 30 years later George Bentham prepared a comprehensive flora (1863–78) using the collections of Cunningham and others. Allan's herbarium specimens were distributed before and after his death to many institutions and botanists, who described more than 450 new plant species.

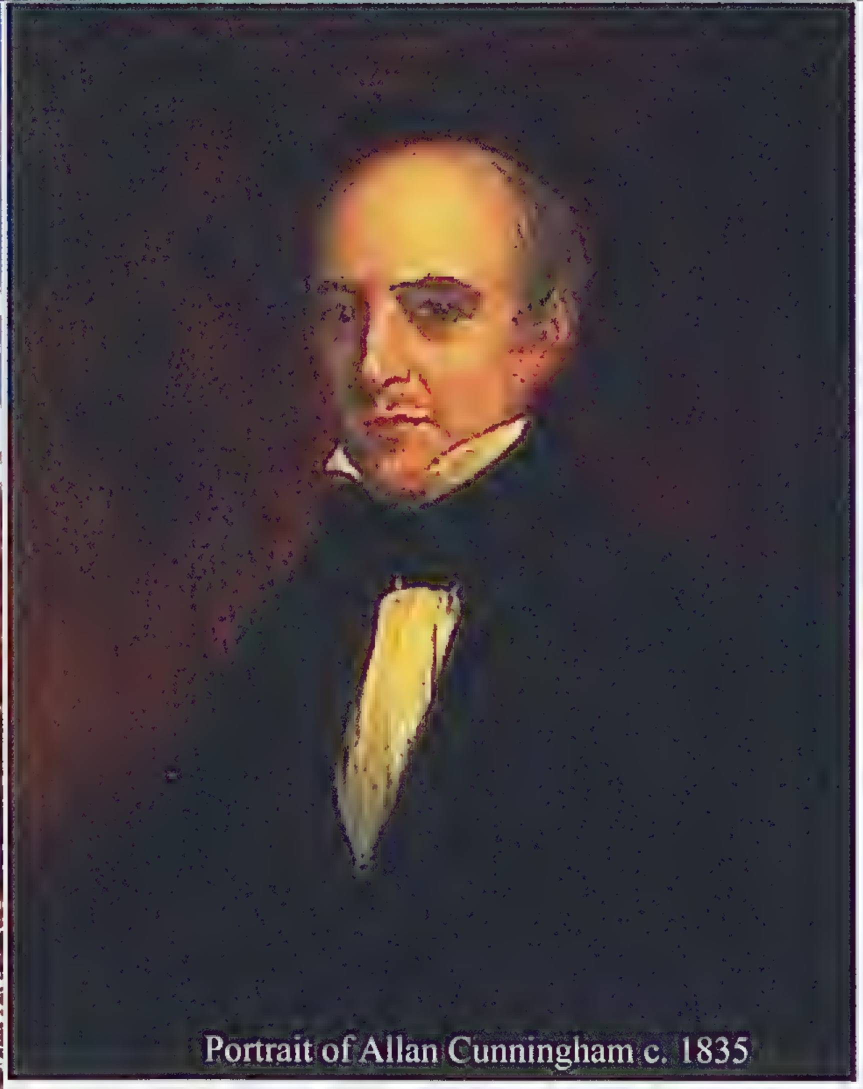
With such a diverse scatter of work by others it has been difficult to assemble Cunningham's orchids and appreciate his contribution. This article is part of a larger study which highlights Cunningham's orchid discoveries and collections. Allan Cunningham is one of the earliest and most important figures in Australian orchids. He is recognized in the naming of Cunningham's Gap and Cunningham Highway in southern Queensland, and in the naming of various species, mainly non-orchids e.g. *Araucaria cunninghamii* (hoop pine), an excellent host for epiphytic orchids.

In this article some highlights of Cunningham's work in Australia and New Zealand are presented. He is connected with more than 60 orchid species: 37 are exclusively Australian, 9 occur in New Zealand but not Australia, and 10 are shared. The remainder are from other locations in the western Pacific.

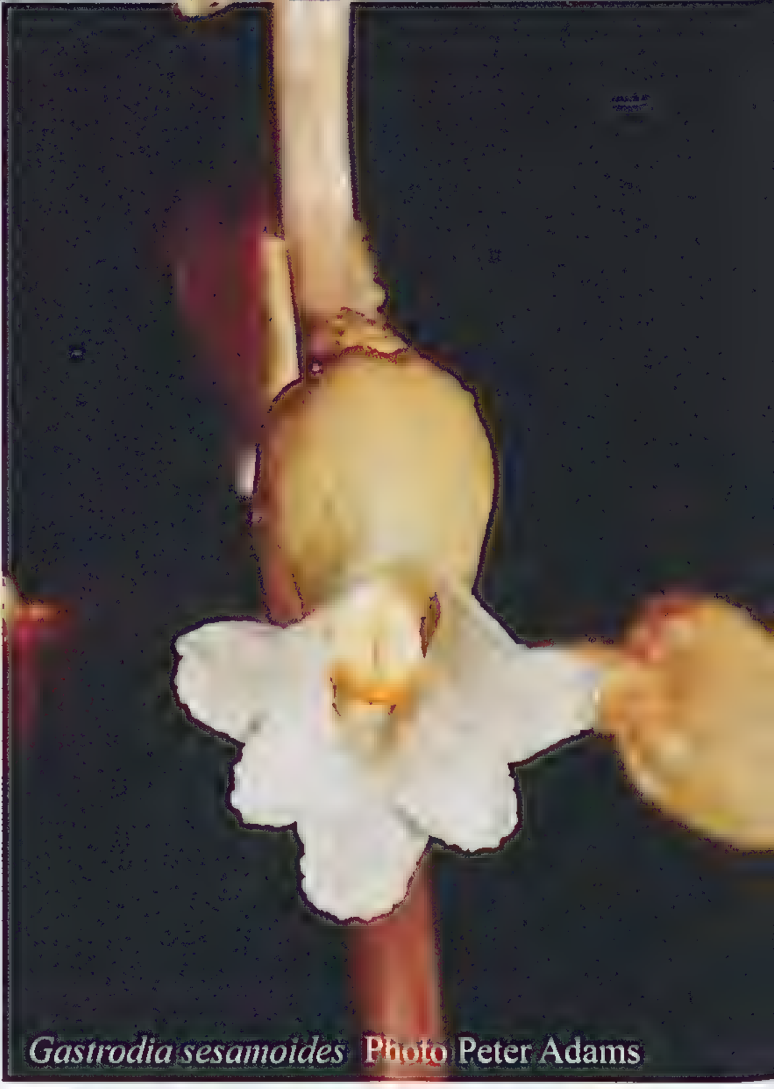
Brief Personal History

Allan was the elder son of a Scottish gardener, receiving a good education which included Greek, Latin and law, before assisting William Aiton, Superintendent of the King's Garden at Kew. He was a competent botanist before travelling to Brazil where he collected plants for two years before arriving in Australia. He was sent out from England by Joseph Banks on the recommendation of Aiton, and arrived on 20th Dec. 1816 with a letter of introduction to Governor Lachlan Macquarie. There were clear instructions to make collections of seeds, bulbs and live plants for the Royal Gardens at Kew, and to document his travels and discoveries in a journal. The main objective was to restore Kew as the leading site for exotic and rare plants, following its decline during the Napoleonic wars.

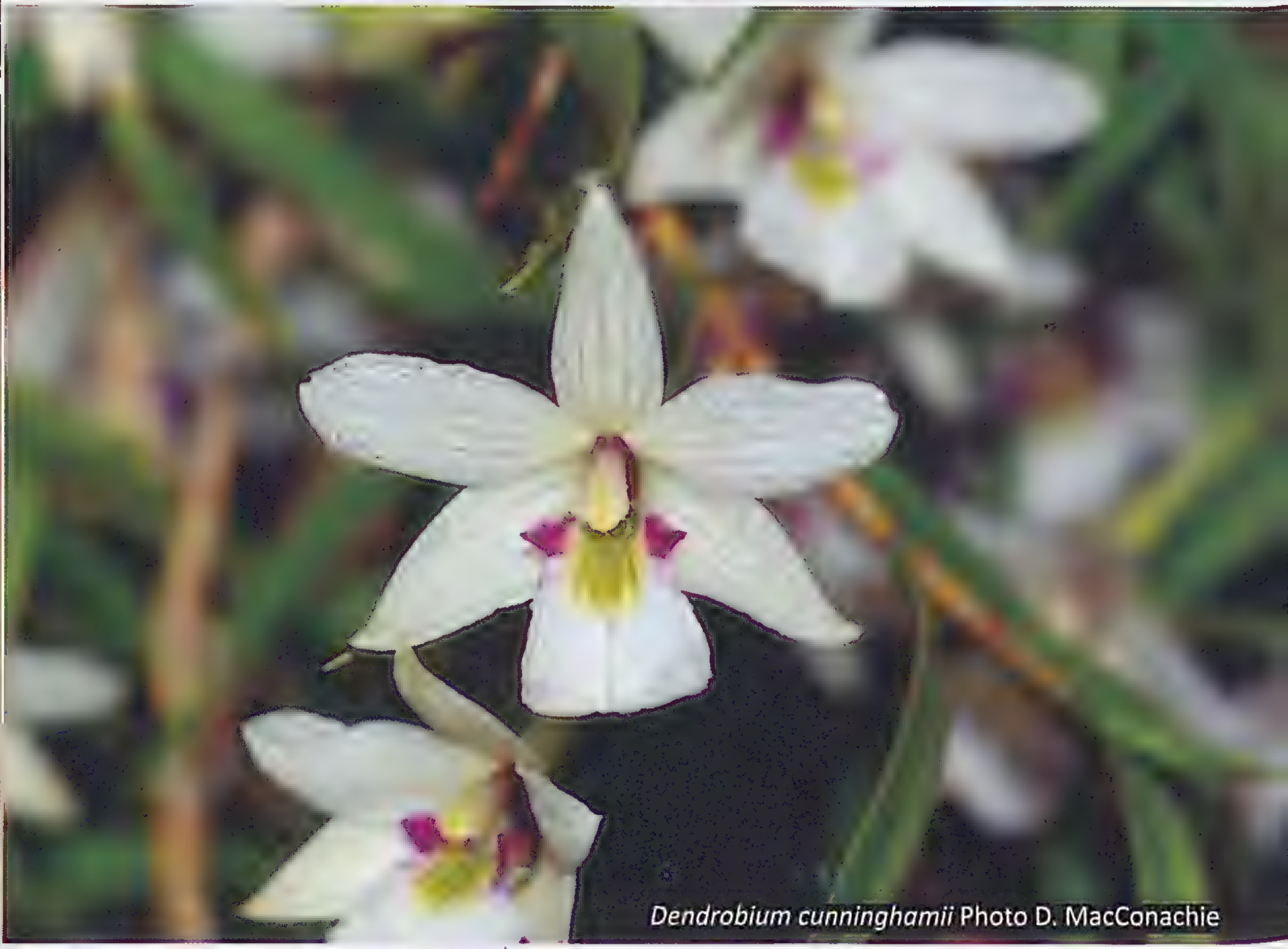
From 1816 to Feb. 1831 he combined an enthusiasm for new botanical knowledge with private and public journeys of exploration. He was the first person to systematically collect and document the flora over a wide area of the colony. The expeditions discovered some of the most productive agricultural and pastoral land in Australia, notably the Liverpool Plains and the Darling Downs, leading to settlement and an expanding economy. After several failed attempts, he also found the inland way to Moreton Bay, enabling its establishment as a colony. He was part of Phillip Parker King's coastal explorations (1817–1822) to northern and western Australia, and to Tasmania (1818–19). He also visited New Zealand in 1826 and 1838, and Norfolk Island in



Portrait of Allan Cunningham c. 1835



Gastrodia sesamoides Photo Peter Adams



Dendrobium cunninghamii Photo D. MacConachie

1830, also Timor and several journeys south to the Illawarra. The only significant botanical reference available to assist him with Australian plants was Robert Brown's *Prodromus* (1810) and he found many of the orchids described there.

He led an austere life in fairly adverse circumstances on the outskirts of Port Jackson, never married and was devoted to his work, enjoying a close connection to the family of his friend, Captain P. King, many people in the colony and his scientific associates in England. He was very determined, committed, friendly, and a skilful botanist, with strong loyalty to his seniors, but did not appreciate the lack of support and acknowledgement by some colonial governors. His explorations contributed more to the colony than most, but he was offered none of the financial rewards or land grants which were commonplace for successful explorers.

Cunningham introduced hundreds of living plants to Kew, and many more by sending seed and dormant propagations. Many were described by William Hooker and other botanists in Europe. He returned to London in 1831 and spent 5 years at Strand-on-the-Green near Kew, sorting his specimens and making arrangements for his collections to be illustrated and described. He corresponded with leading botanists Hooker, Brown, John Lindley, de Candolle and William Colenso, and made exhaustive records in journals and letters (Orchard & Orchard 2015). Allan was generous in assisting others, and provided specimens of most or all of his Australasian Orchidaceae to John Lindley, who published many of them in his monograph on the family (Lindley, 1830–40), without using the draft descriptions of Cunningham. Hence, these taxa are cited as, for example, *Caladenia clavigera* A.Cunn ex Lindl. (Orchard and Orchard 2015), rather than using Cunningham (Cunn.) as the sole authority.

William Hooker illustrated only the showiest orchids in *Curtis's Botanical Magazine*, and when he notified Allan that he would not illustrate others, Cunningham responded by turning to Lindley and *Edwards's Botanical Register.*

His major contribution was sending several thousand dried specimens to England accompanying living plant collections, and these have been described from distribution of this material before and after his premature death in 1839. He suffered considerable ill health, especially arthritis and liver disease associated with exploration and poor living conditions, and after exposure to months of wet weather in New Zealand in 1838, he developed pneumonia complicating pre-existing tuberculosis, and died in Sydney on 27th June 1839.

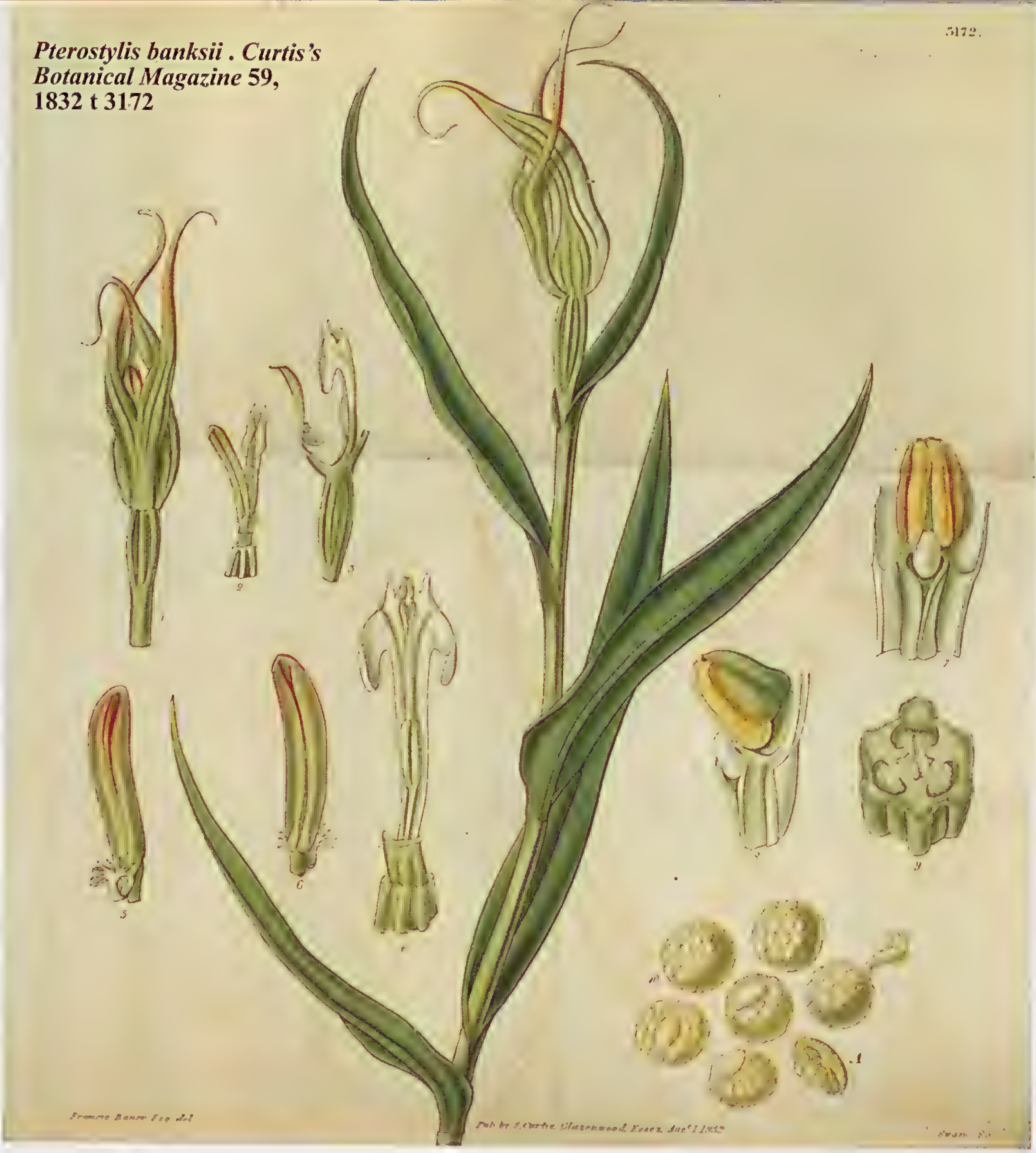
After his death his friend and legatee Robert Heward distributed duplicates of Cunningham's collections to a number of botanists. He did not have the opportunity to write his planned Floras of New Holland and Norfolk Island, but with William Hooker's assistance his *Florae Insularum Novae Zelandiae, or a Specimen of the Botany of the Islands of New Zealand* was published in *Companion to the Botanical Magazine* and *Annals and Magazine of Natural History* in the period 1836–1840.

There has been no single compilation of the orchids which were connected with Allan Cunningham. In this article, which is part of a larger study of all of the orchids associated with him, some highlights of Cunningham's orchid discoveries and collections are assembled from several diverse sources. They show that Allan Cunningham is one of the earliest and most important figures in Australian orchids, of greater importance than his association with geographical features in southern Queensland. In the text that follows, some spellings and authorities are as used by Cunningham and not as used currently; and plant names are not in italics.

A Consignment of Australian Orchids from Richard Cunningham

In a letter dated 25th May 1835, Allan Cunningham advised William Hooker of orchids sent from Sydney in the ship *Richard Reynolds* to St. Katharine Docks, London.

"Just as the 'Reynolds' was putting to sea from Port Jackson, my brother, it seems, by mere accident heard of her sailing and had barely time to despatch a box of Colonial Orchideae for the Glasgow botanical Garden, addressed to Mr. Murray, which however was received by the Ship then almost beyond the Heads of the Harbour, but as no time was allowed him to write to you or Mr. Murray of its contents, he requested me in the hasty note he



***Pterostylis banksii* . *Curtis's Botanical Magazine* 59, 1832 t 3172**

gave to me, to advise you of the Shipment he had made. –

..the box in the Baggage Wharehouse...waits your direction to your agent.... to ...make the necessary Entry. The following is a list of the several species... tubers were deposited in the Earth in the Box in November last."

"Diurus maculata, elongata, aurea, Thelymitra ixioides, angustifolia, carnea, Prasophyllum elatum, Neottia australis, Microtis parviflora, Acianthus fornicatus, exsertus, Cyrtostylis reniformis, Lyperanthes suaveolens, Glossodia major & minor, Corysanthes fimbriata R.Br., pruinosa R.C. 1833, undulata R.C., unguiculata R.Br., bicalcarata R.Br.".

The authority R.Br. was used for some species, and RC refers to collection by his brother Richard. Several of these plants were illustrated in *Curtis's Botanical Magazine*, often some years later when in flower. The time delay and absence in England of people able to correctly identify the species sometimes led to inaccuracies in the publication of names accompanying illustrations. This was the first time that some of the plants were recorded and the variability and limits of the new species were unknown. The boxed earth method of transport over several months at sea was largely successful for dormant and actively growing plants.

An Allan Cunningham Consignment Sent to London, and its Collection

In winte 1838 Allan visited the north island of New Zealand, particularly the Bay of Islands area, and experienced much exposure "working hard in the rain, mud and water", which was deleterious to his health and contributed to his decline and death the next year. He shipped two consignments of orchids and other plants in earth, one being lost at sea due to water damage. A second group of species arrived safely:

"Thelymitra Forsteri, grandiflora (a very distinct species), Orthocerus strictum Br., Microtis Banksii AC., Acianthus fornicatus Br.?, rivularis AC, Cyrtostylis (your new genus, I have no books at hand), Pterostylis Banksii (very splendid), collina, a little fellow, Gastrodia – and of Epiphytes I have seen 4: Earina mucronata Lindl. (Epid. autumnale Forst.), Dendrob. cunninghamii Lindley, Bolbophyllum pygmaeum Lindl., Sarcochilus clearly, not in fl."

(List and comments taken from a letter to William Hooker 27th Dec. 1834.)

The last mentioned plant was *Drymoanthus adversus* (Hook.f.) Dockrill 1907, a very small growing Aeridinae species allied to *Sarcochilus*. Another species *Drymoanthus minutus* Nicholls, is found in north Queensland.

Dendrobium cunninghamii Lindl. 1835

Collected North Island, New Zealand by Richard Cunningham.

In his *Specimen of the Botany of the Islands New Zealand*, Cunningham lists it as collected by Banks 1769, North Island; Wangaroa 1834 by R. Cunningham, and on the shores of Astrolabe Harbour 1827 by D'Urville. It is the only *Dendrobium* in New Zealand, occurring on both main islands and Chatham Island. It was first discovered by Banks and Solander as *Epidendrum pendulum*, illustrated after Sydney Parkinson Plate 552 in Banks' *Florilegium* (Alecto Historical Editions, London).

Dendrobium speciosum 'var. *humile*'

Mentioned in Cunningham's undated letter to John Smith, Royal Gardens Kew, in 1838. He spoke of "Mr. Huntley...receiving a *Dendrobium* of some nurseryman which is called *speciosum* 'var. *humile*' and asks me if I know of a dwarf var. of that Sp. in the Colony". There is no known specimen or formal description of this entity, and it is highly likely to be a selected plant of short stature sent from an exposed site near Sydney, the type variety *D. speciosum* var. *speciosum*.

Erythrorchis cassythoides (Cunn. ex Lindl.) Garay 1986

Initially described as *Dendrobium cassythoides* Cunn. ex Lindley in *Edwards's Botanical Register*.21.subt.1828 (1836) (? not illustrated) and also as *Galeola cassythoides* (Cunn. ex Lindley) H.G.Rch.b. 1862 with a Type, New South Wales, A. Cunningham s.n. The letters s.n. mean that Cunningham collected it and the specimen is not numbered.

Allan Cunningham advised Hooker in a letter of 25/5/1835 that Richard Cunningham had sent this specimen to him in Nov. 1834. It was common in the early 19th century to describe new epiphytes as *Dendrobium* until more discoveries were available to define generic limits. This species was attributed to *Galeola* for about 120 years.

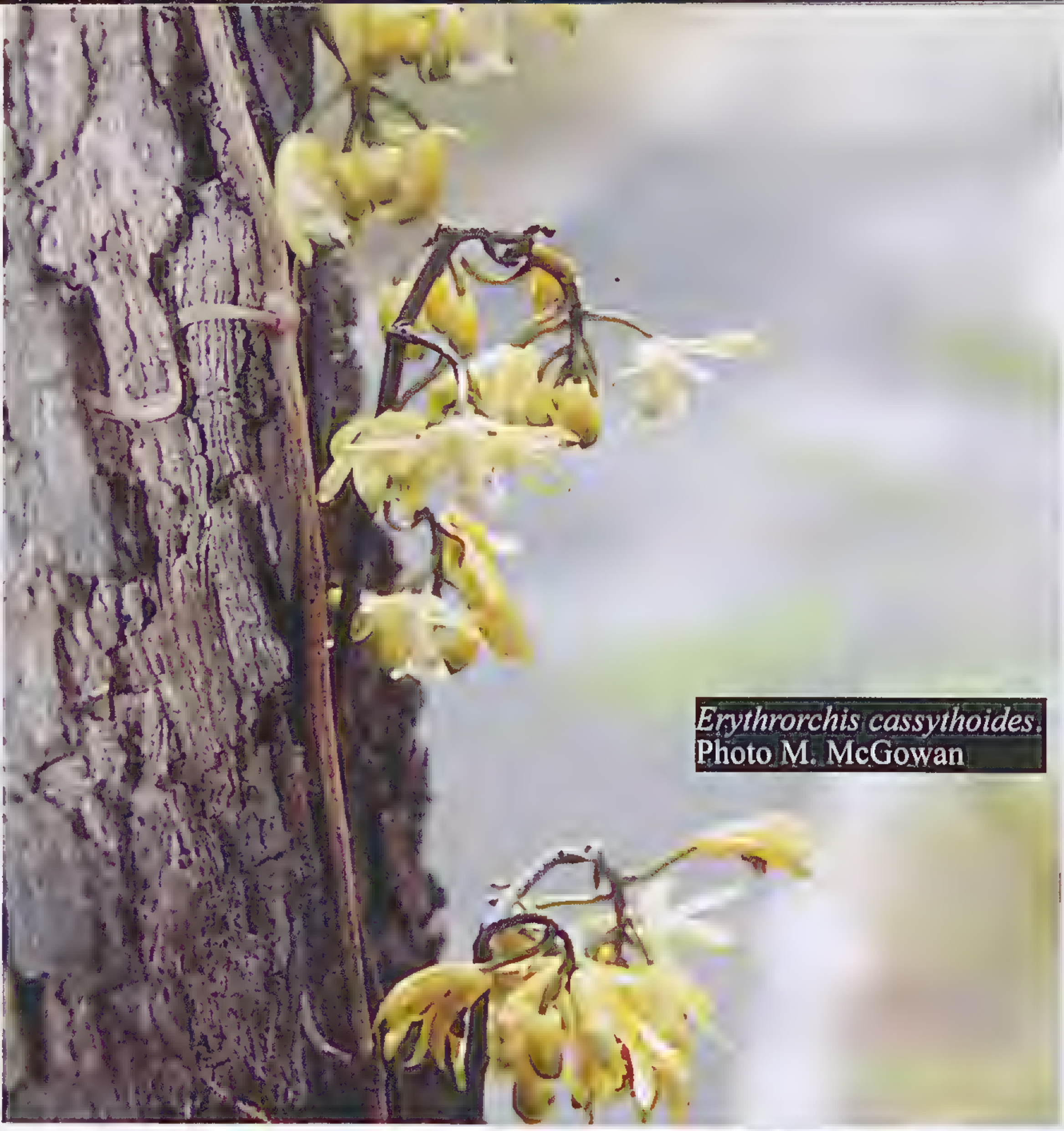
Oberonia complanata (Cunn.) Clem. & Jones 1989

Cunningham described it as *Dendrobium complanatum* Cunn. in *Edwards's Botanical Register* Misc. 34 (1839) with a type specimen collected at Moreton Bay in 1828. Joseph Hooker noted in a pencil entry in the column of the Botanical Register at Kew, that it was clearly an *Oberonia*. The type specimen was not found, so a neotype has been selected from Brisbane Herbarium material collected in the Shoalwater Bay area.

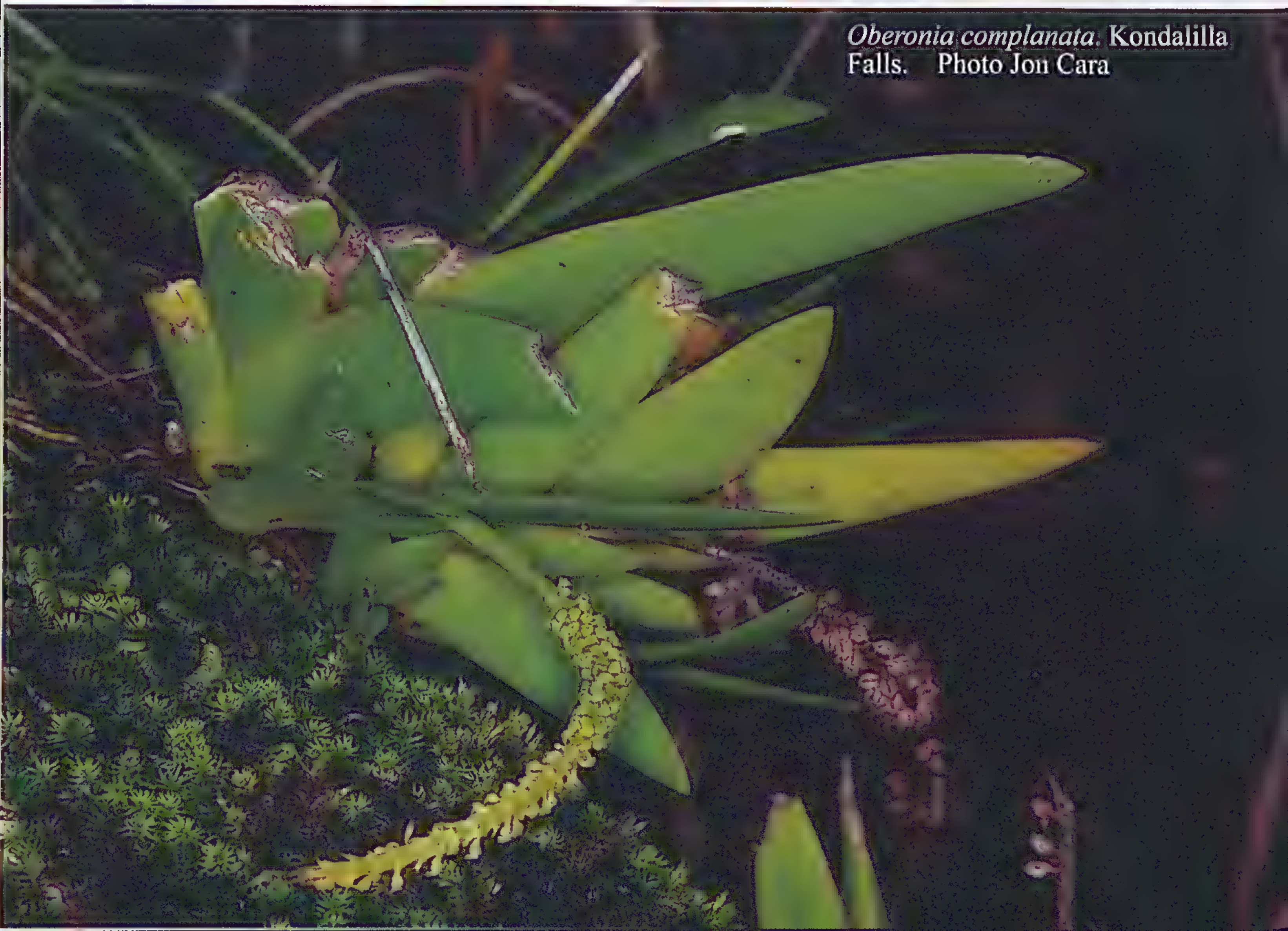
Gastrodia sesamoides R.Br. 1810

Type: Port Jackson R. Brown s.n. Oct. 1803.

Cunningham mentions this species in several of



Erythrorchis cassythoides.
Photo M. McGowan



Oberonia complanata. Kondalilla Falls. Photo Jon Cara his letters to William Hooker, and to W. Colenso in New Zealand, who supplied him with a preserved specimen. The roots called 'Colony Native Potatoes' were roasted by aborigines but said to be "not worthy of being compared with the common Potato or Turnep".

Pterostylis banksii A. Cunn.

Type: Bay of Islands, New Zealand. A. Cunningham s.n.

In a letter to W. Hooker dated 9th May 1832 (Orchard & Orchard 2015) Cunningham conveyed Robert Brown's wish to name it after Banks, who had found it on Cook's *Endeavour* voyage. Cunningham also reported Brown's discovery of unusual pollen grains with regularly pentagonal and doubly parallel-lined outlines, not seen in the other orchids. These are illustrated in the *Bot. Mag*. print t3172. This is one of the most striking orchids in New Zealand. There are detailed notes of Cunningham's discovery at the Bay of Islands:

"..in the Bay of Islands, I found on the bank of a stream which is received into the Bay .... , a *Pterostylis*, remarkable no less for the large size of its cauline leaves, than for its height, which exceeded a foot. On my return to Sydney, I carried with me some roots of this unpublished plant, which I transmitted to Kew, by an opportunity which then offered. There it had been long supposed to be dead, when, to the surprise of all of us, it has thrown up a perfect flower-stem, which I carried to Mr. Bauer, who has not only made a beautiful drawing of it, but has most kindly permitted me to send it to you to publish in the Botanical Magazine." (Moore & Edgar, 1970.)

Discussion

The orchid work of Allan Cunningham was a key part of his extensive expeditions and botanical collection of live plants and dried specimens. Apart from his brother Richard, he received little assistance with these tasks, there being no other botanical expertise in the colony. The understanding of orchids was limited at this time and they were considered as parasites.

He correctly identified many of the orchids described in Latin with no supplementary material in Robert Brown's *Prodromus*, and made the first steps to mapping their geographical distribution. He is known as a colonial explorer but is not sufficiently appreciated as a systematic botanist and geographer. He outlined where epiphytes and terrestrials occurred in different parts of Australia and the responsible factors of land form, especially mountain ranges in the east, and the role of seasons, rainfall and other climatic conditions, the paucity of orchids in the dry interior and the differences in orchid flora east to west and north to south.

Describing, naming and classifying entirely new species was difficult in this early period of accumulation of new knowledge, and his work was on the same level of European botanists faced with the same situation. Overall, his identifications were very accurate for the time, and there may be an explanation for the misidentification of the *Oberonia* at a time when he was very familiar with *Dendrobium.*

The challenges of exploration by sea and land through uncharted territory were extreme, and he paid a high price in poor health and a premature death. Much of his knowledge was not published, and the location and assembly of his orchid legacy from 18 years in Australia and New Zealand will require further ongoing effort.

Acknowledgements

Malcolm McGowan and Sheryl Lawson assisted with sourcing illustrations. I thank Tony Orchard for discussions about Allan Cunningham.

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In the Steps of Rudolf Schlechter

Text and photographs by Charlie McMonagle
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Introduction

In 1969, I was appointed director of a consulting engineering firm and given responsibility for the company's activities in Papua New Guinea (PNG). Over the following 6 years, I managed the design and construction of six buildings at the University of Technology near Lae, design and construction advice for three bridges between Buin and Boku on Bougainville, a wharf for coastal shipping at Lae and design for numerous smaller projects in Lae, Port Moresby and the Eastern Highlands. Having joined the recently-formed John Oxley District Orchid Society, President Les Lobley gave me contact details for Andreé Millar at Lae Botanical Gardens. She introduced me to a small fraction of the 3000 plus orchid species that are native to PNG. I visited many habitats in the vicinity of Lae and Port Moresby and I spent 10 days on a botanical survey at high altitude in the Owen Stanley Range near Mt. Albert Edward. With this background, I was invited to talk about Rudolf Schlechter and my experiences at the Combined Societies Workshop at Howard (near Maryborough) in July 2016.

Photographs have been scanned from Kodachrome slides taken in 1971. All have deteriorated to a greater or lesser extent over the past 45 years.

Who was Rudolf Schlechter?

Friedrich Richard Rulolf Schlechter (1872-1925) was a German Botanist. He was a prolific taxonomist who did field work over Africa, South America, SE Asia and Melanesia. This article deals only with his work in German New Guinea including the Bismark Archipeligo.

Schlechter was sent by the German Government in 1899 to find latex-producing plants (rubber trees) in the German colonies in Africa and Asia. He spent time from October 1901 to August 1903 and from March 1907 to October 1909 in German New Guinea and nearby areas. He made extensive field notes and collected herbarium specimens of most species. Sadly, most of his herbarium specimens were destroyed by the Allied bombing of Berlin in WWII. On returning to Berlin where he worked at the Botanical Museum (curator from 1921), he documented his field work in *Die Orchideen von Deutsch-Neu-Guinea* (1914) which runs to 1180 pages, describing 1463 species of orchids, many for the first time. But orchids and latex trees were not his only interests. He described plants of many other families, including hoyas of which he described 78 species. He is reputed to have had an extraordinary memory, which perhaps explains why he was able to identify and describe so many species.

Some Schlechter statistics:- in his book he describes

332 species of *Bulbophyllum*

256 species of *Dendrobium* (242 first described by Schltr.)

159 *Liparidinae* (*Oberonia, Liparis, Microstylis*)

147 *Sarcanthinae* (now in *Aeridinae*) (across 25 genera including 63 *Taeniophyllum*)

130 *Glomerinae*

87 *Thelasiinae* (including 75 *Phreatia*)

58 *Physurinae* (now *Goodyerinae*) (*Goodyera, Zeuxine*)

50 *Phaiinae* (now *Collabieae*) (*Phaius, Calanthe, Spathoglottis*)

48 *Podochilininae*

and other genera in decreasing numbers.

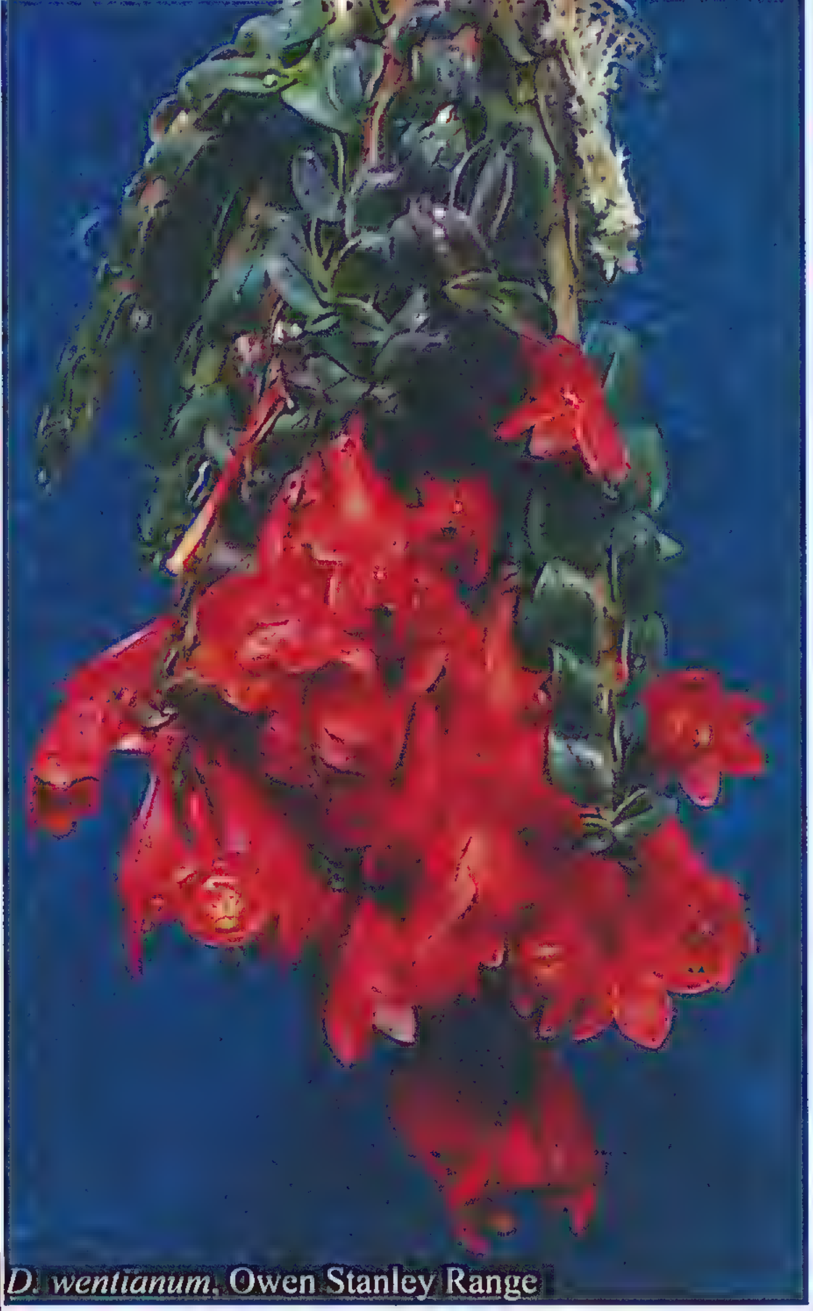
Schlechter's Other Contributions

Schlechter is regarded as the most prolific of all orchid systematists. His final work, *Das System der Orchideen* published posthumously in 1926, was the accepted classification until updated by Dressler in 1960. It includes documentation of 610 genera. His systematic classification system is still in use by many herbaria worldwide.

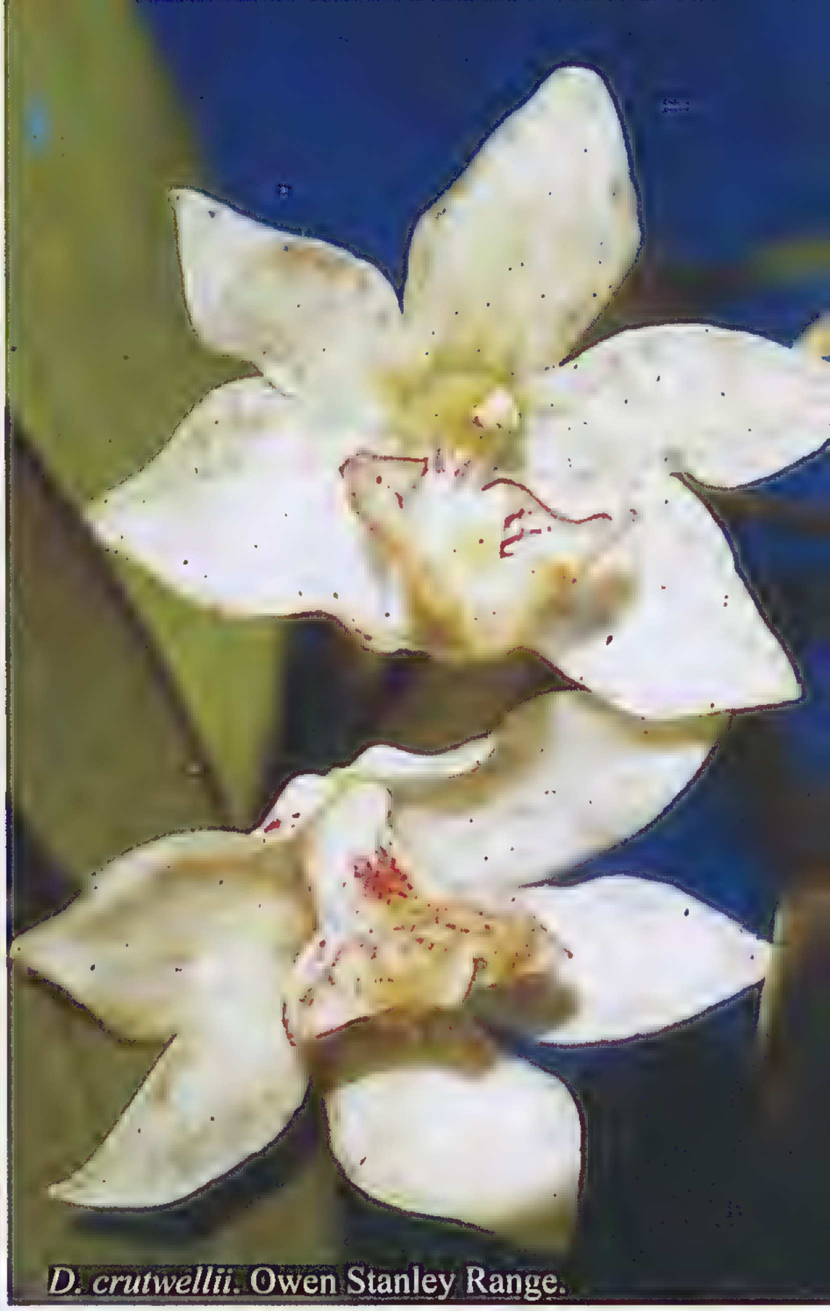
His classification of *Dendrobium* into 41 sections

Andreé Millar 1973.

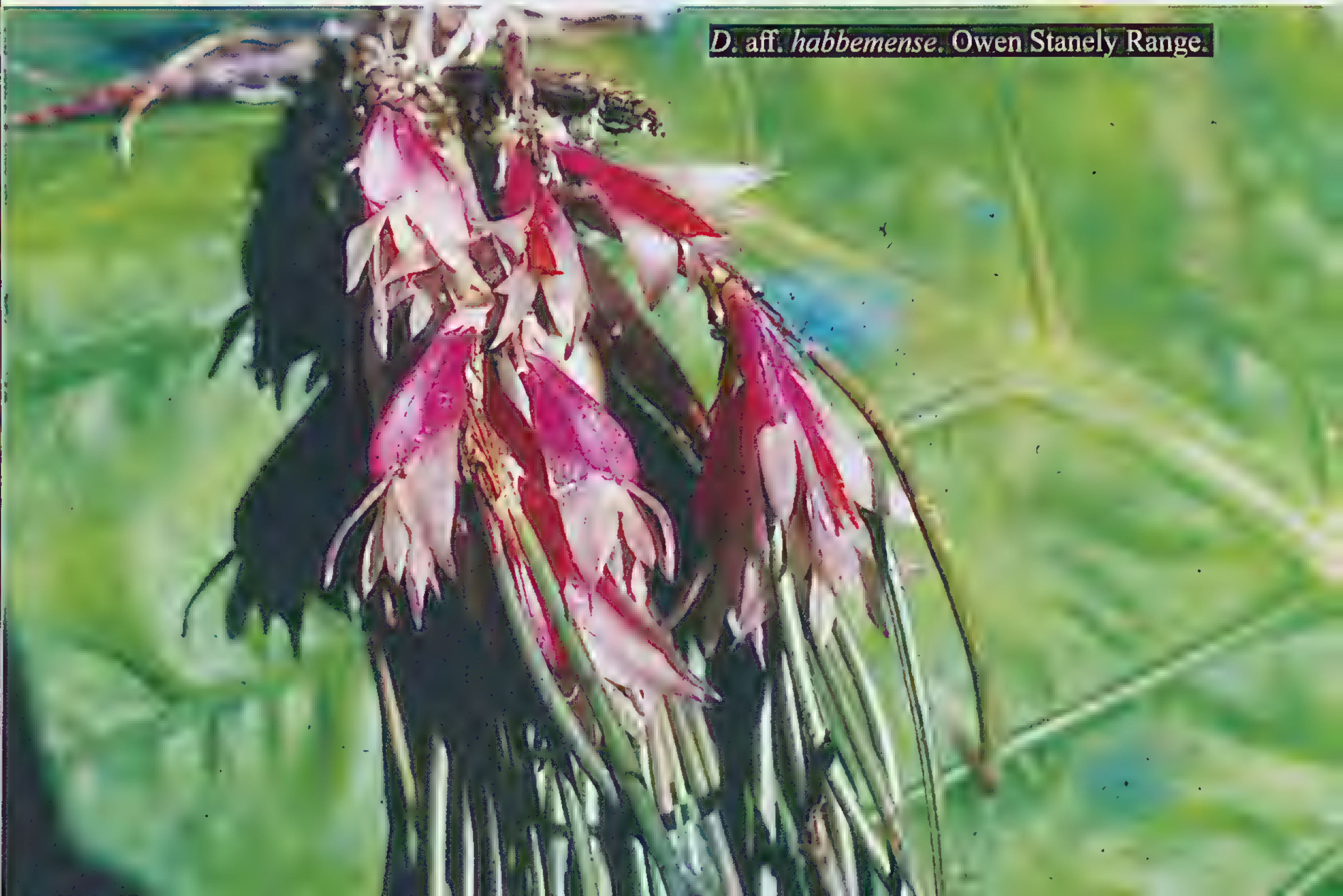
Group photograph, Owen Stanley Range expedition 1973. Centre front Charlie McMonagle (white shirt). Left of Charlie is Phil Spence in brown jumper. Photo by Jack Jannese.



D. wentianum. Owen Stanley Range



D. crutwellii. Owen Stanley Range.



D. aff. *habbemense*. Owen Stanely Range.

endured for almost 90 years until revised recently with the assistance of molecular biology. He invented the term *Eugenanthe* to describe the section he had previously described as *Eudendrobium* (meaning 'real' *Dendrobium*). His 41 sections have been reduced to 30 in Volume 6 of *Genera Orchidacearum*, published in 2014.

Who Has Travelled in the Steps of Schlechter?

Nobody I know could fill his shoes, but Andreé Millar visited most of the areas explored by Schlechter, collecting live plants and herbarium specimens. Her interest in orchids developed in Bulolo where she and husband, John, a mining engineer, lived from 1947 to 1951. She became fascinated by the variety of orchids native to the Morobe Province, particularly in the vicinity of Bulolo, Wau and Edie Creek where there were a number of gold mining operations. Although not formally trained, she acquired considerable skills in botany by private study over this period. She also became very fluent in pidgin English and developed a great rapport with the indigenous population.

On moving to Lae in 1951, she was employed as a botanical assistant at the Lae Botanical Gardens. She undertook numerous expeditions into local and remote areas, collecting herbarium specimens and plants to populate the impressive orchid garden. She had a particular interest in the *Spatulata* dendrobiums, which she grew on teak posts. She relied heavily on the work of Schlechter to identify the plants she found, but she had access only to his descriptions in Latin and an early abridged translation. She was a formidable personality and was never afraid to challenge authority, even the Prime Minister from time to time. She employed 8 or 10 indigenous lads who became fiercely loyal to her even though she controlled them with strict discipline.

In 1971, Andreé was appointed curator of the National Capital District Botanical Gardens within the University of PNG at Port Moresby. She set about establishing an orchid garden that would contain representative species from all areas of PNG that could be grown in the climate of Port Moresby. Around the same time, she was instrumental in founding the Orchid Society of PNG, becoming the inaugural Secretary. In this capacity, she promoted the first PNG International Orchid Show at Port Moresby in 1973.

Andreé published two books with the same title, *Orchids of Papua New Guinea*, the first in 1978 and the second more comprehensive treatment was incomplete at the time of her death. It was completed the following year by photographers Roy and Margaret Mackay.

My Adventure in the Owen Stanley Range

Following her appointment to the National University, Andreé Millar was asked to arrange an expedition to Mount Albert Edward (3990m elev.) so that botanists could make an inventory of high altitude flora. The plan was to spend 10 days on the mountain, based in a camp at around 2600m elevation. She invited three Australians, including Phil Spence and Jack Jannese, who were all interested in orchids. My "official" duty was to take photographs for the group. On the weekend before leaving, we spent two days on the Sogeri Plateau (≈500m) becoming acclimatised. We found many orchids including *Bulbophyllum fletcherianum, Sarcanthopsis warocqeana* and *Vanda hindsii.*

We accessed Mt Albert Edward via the village of Woitape which has an airstrip suitable for Twin Otter Aircraft. At an elevation of 1590m, we were already half way up the mountain when we disembarked. Camp equipment and supplies were hauled part of the way to the base camp at 2600m by tractor/trailer and the remainder by a team of 'calaboose boys' under police supervision. Swiss Catholic Missionaries had built a graded walking track from Woitape to the eastern side of Mt Albert Edward, reaching an elevation of around 3050m through Murray Pass.

At higher elevations, lush rainforest is often replaced by bare ground with cycads and low bushes. At the top of Murray Pass, there was a hut where the orchid enthusiasts spent two nights. At this altitude, mornings were sunny but the clouds rolled in around midday and it rained all afternoon. Night temperatures were cold even though we were only 8° south of the equator.

We were accompanied by three local indigenous guides who took us into patches of mossy forest where we saw numerous dendrobiums from sections

Calyptrochilus/Oxyglossum. Species included *D. subacaule, D. masarangense, D. decockii* and *D. vexillaris*. In the same area we found multiple species of *Bulbophyllum,* unidentified, but mostly from sect. *Pedilochilus,* several Eria and *Glomera* species and one *Ceratostylis*. The standout was *D. wentianum* which flowered in clusters on pendulous canes, hosted on moss-covered branches of dead trees with little shade, except for the cloud mist which was widespread at that altitude.

Visit to Koisipi

On returning to Woitape, we were transported by tractor-drawn wagon to Koisipi, around 12 km to the north. Here a flat area of land at an elevation of 1940m was used to cultivate vegetables, which were regularly delivered to Port Moresby by light aircraft. Near the end of the runway, there was a large swamp traversed by a number of tracks with boardwalks over the more muddy areas. Here we saw numerous orchids, mostly dendrobiums of the *Oxyglossum, Pedilonum* and *Calyptrochilus* Sections.

This addition to our visit emphasised the diversity of orchid species that occur above 1900m and was an appropriate end to an exciting two weeks of exposure to a small fraction of the species in this botanically rich country.

Other Contributors to Knowledge of the Orchids of PNG

André Schuiteman and Ed de Vogel published *Flora Malesiana: Orchids of New Guinea Vol. II Dendrobium & Allied Genera* in 2002. This is a DVD containing over 3000 images of 560 *Dendrobium* species. It is a great reference source, compiled under the auspices of the Nationaal Herbarium Nederland and published by UNESCO. André Schuiteman also authored *A Guide to Dendrobium of New Guinea* in 2013.

Phillip Cribb sorted out a lot of nomenclature issues within section *Latouria* in 1983 and section *Spatulata* in 1986.

Peter O'Byrne published *Lowland Orchids of Papua New Guinea* in 1994, following extensive exploration and research.

Hermon Slade and Gerald McCraith,through the Australian Orchid Foundation, were instrumental in the publication in 1982 of a translation of Schlechter's *The Orchidaceae of German New Guinea.*

Phil Spence has visited PNG many times over the past 45 years with particular interest in *Latouria* dendrobiums and with Roy Tokunaga (Hawaii), compiled a supplement to the December 2010 edition of The American Orchid Society journal.

John Womersley lived in Lae for 29 years where he was Assistant Director of the Division of Botany, responsible for the Lae Botanical Garden.

Alick Dockrill was in charge of the Herbarium at Lae for a period.

Canon Norman Cruttwell collected in the vicinity of Goodenough Bay and Mt Suckling (3500m) at the eastern end of the Owen Stanley Range.

Kip & Mary McKillop amassed a collection of 36,000 orchid plants on their plantation at Arawa on Bougainville.

Justin Tkatchenko compiled *Spatulata Orchids of Papua New Guinea*, published by the Orchid Society of Papua New Guinea in 2006.

Geoff Stocker (co-author of *Dendrobium & Its Relatives*) travelled extensively throughout PNG as a Forestry Adviser.

Charlie McMonagle is an orchid grower and AOC judge based on the Sunshine Coast, Queensland.

D. Claro Sunset.
Photo Peter Adams

Flying the Colours - *Dendrobium* Claro Sunset and *Dendrobium* Claro Star

Text by Mark Daniels
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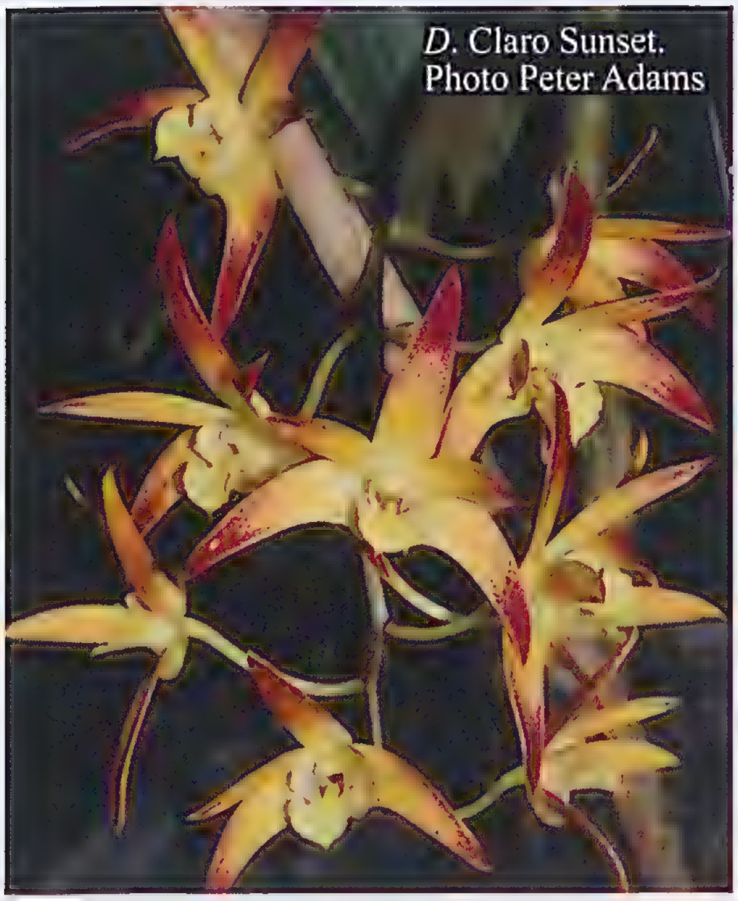
Many outstanding colourful hybrids originated with the breeding of Neil Finch, founder of Down Under Native Orchids (DUNO), Reg Sheen and Syd Batchelor. *Dendrobium* Burgundy Cream (*D.* Pee Wee x *D.* Dot Sheen) is one example, and I am one of many who have continued the lines. I understand that Reg Sheen made this cross. Neil registered it in 1995, then crossed a seedling with *D. speciosum* var. *curvicaule* 'Daylight Moon', registering it in 2002 as *D.* Gundy Moon. The gold-orange and purple sunset colours have come through in these *D. speciosum*-dominated plants and the telltale near-white lips from *D.* Burgundy Cream.

Dendrobium Claro Sunset

DUNO crossed *D.* Burgundy Cream with *D.* Yondi Tina 'Goliath' but did not register it. I purchased six plants about 10 years ago from Kevin Hipkins of Royale Orchids. There are not many plants still around. Slow growth and a relatively high initial mortality may be responsible. I still have three of the original plants. They took a long time to establish roots in the Upper Hunter environment, producing on average one new growth per year, perhaps because of the 12.5% *D. bigibbum*, combined with the poor water quality I have been putting up with for years. In 2012 I crossed one of the seedlings named 'Burn Off' with a vigorous growing gold-coloured *D. speciosum,* bought from Ted Walmsley (*D. speciosum* var. *grandiflorum* 'Beranghi Gold' x *D. speciosum* var. *speciosum* 'Windermere'), an intervarietal seedling that I named 'Brilliance'. The cross has recently been registered as *D.* Claro Sunset.



D. Claro Sunset.
Photo Peter Adams

My objective was to keep the yellow-orange colours and increase growth rate and vigour. *Dendrobium speciosum* 'Windermere' tends to allow colours of the other parent to predominate in the offspring. The plants grew well over 3 years and can make 2 new purple red growths each year in this initial phase. Dan Tomich of Sky Orchids flasked the seed and we sold about 60% of the cross. There should be over 100 good plants out there growing in collections. We kept about 60 and 20 that were slow-growing went in the garbage bin. The good news is that 4 of best 6 growers I selected have not flowered yet, with huge bulky red canes, and I am expecting top results next spring. The colours have been from burnt apricot-gold through to bright lemon gold and beautiful sherbet oranges with racemes straight up. Two have been pendulous like a hard cane *D.* Mousmee. I made 10 flasks and have grown 30 plants to flowering, mainly with sunset colours. They are vigorous and have unusual full red new growths. Ten plants flowered in 2015 and another 20 in 2016. The flower shapes are varied and pleasing.

Dendrobium speciosum 'Brilliance' was in flower at Ted Walmsley's and had great deep gold colour and good shape. The plant was discarded as it had algae over the leaves, and looked in decline, but I solved this by treating with a light dose of hospital grade disinfectant, dishwashing detergent and a cap of methylated spirits mixed in a 4 litre container, applied with a bannister brush and then a few minutes later washed off with the hose. Ted sold the plant to me for a giveaway price. The flower was as good a gold as you can get and went orange after 5 days. The plant flowers every year, which excited me about using it for breeding. The shape and colour was better than *D. speciosum* 'Windermere' as the colour deepens to an orange-gold with age, and the flowers are a little closer together, perhaps slightly crowded. The next step is to remake the cross with *D. speciosum* var. *curvicaule* 'Goldest' and with var. *speciosum* 'Windermere'.

Dendrobium Claro Stars

This cross is *D.* Fromelles x *D. speciosum* 'Brilliance', and some notes on this hybrid are found in *The Orchadian* 2015. More seedlings have flowered this year, and the range of colours and presentations has increased. *Dendrobium* Fromelles (*D.* Aussie Angel x *D.* Aussie Victory) was registered by DUNO in 2009 and contains *D. tetragonum* 31%, *D. bigibbum* 25%, *D. kingianum* 19%, *D. fleckeri* 12% and *D. speciosum* 12%. Crossing with *D. speciosum* has produced plants with vigorous growth, erect to arching racemes and colour range from lemon yellow to deep mauve-purple on a white background. The seedlings contain 31% *D. speciosum*, and the reduced *D. bigibbum* of 12.5% improves growth in my relatively cool conditions. Growth and flowering are in the style of *D. speciosum*. *Dendrobium* Fromelles 'Japha' has a large upright flower and was the pod parent of *D.* Claro Stars.

Culture

I grow both hybrids in two intermediate shade houses covered with polycarbonate sheet, and another two bush houses for mature plants which have 70% black shade cloth. I use a coarse mix which is kept on the dry side. I always water well and let the orchid medium dry right out. I use fresh chunky sterile bark straight off the tree (no fungi or pathogens in it). It is washed, treated and then impregnated with minerals. It is a good quality red screened Tumut chunky landscape *Pinus radiata* bark. I know this is not the norm, but I have only had one problem and that was when the supplier substituted the proper bark with old bark mixed with slash pine. Another potential problem is granule fertilizer. Tread carefully and only use small amounts, as it can have a toxic affect when in contact with pine bark.

The important thing is to buy the bark at the end of winter when the tree has not been growing and the bark is chunkier. This product has the cambium layer in it, which contain the sugars and nutrients from sap flow. My mix is 6 parts medium size pine bark 15–20 mm, 1.5 parts of 15 mm white and red scoria, and one part white screened ash 10–15mm (from the bottom of the furnace in a coal-fired power station). I fertilize regularly at least every second watering using a Hudson Applicator hose sprayer modified for my use.

I try to use the right amount of fertilizer salts mixed with seaweed extract and fish emulsion. A heaped teaspoon of cheap drinking coffee helps to dissolve salts and keep any pathogens at bay (do not use coffee grounds). I also add a couple drops of dishwashing detergent as a wetting agent to one litre of water in an applicator. Strength or conductivity should be around 200–400 parts per million. You will soon know if you have used too much fertilizer as it causes the potting mix to clog up because composting has been triggered. There is then no proper air circulation. Slime can develop on top and fungus gnats may thrive and decompose the orchid mix. Plants may overheat in the plastic pots, the root systems may die, or the orchid may barely grow. Mature plants can cope with this to a certain extent.

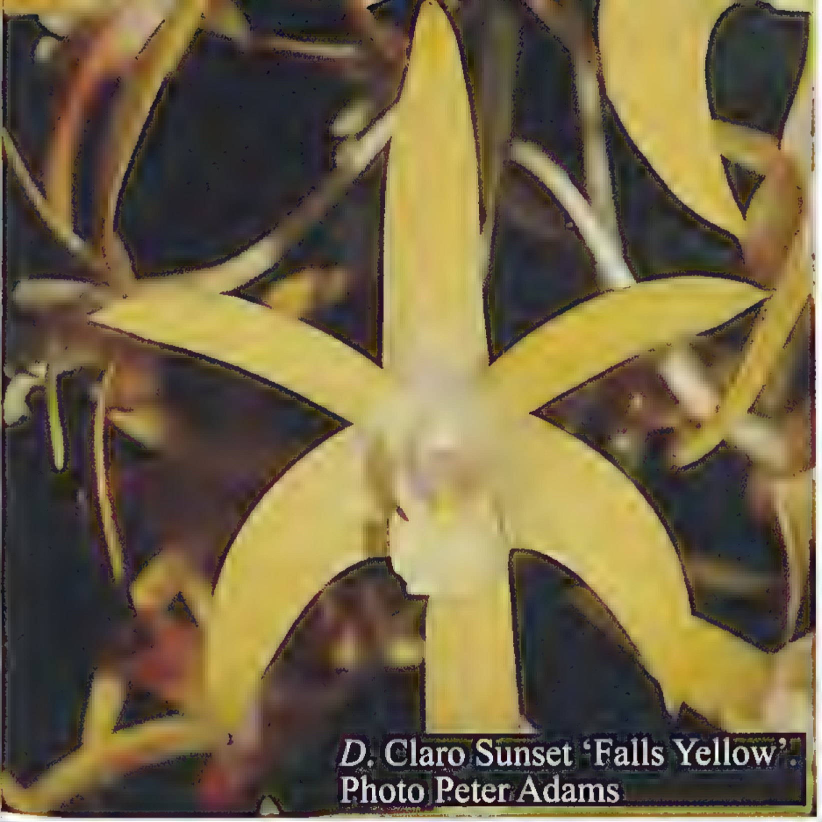
The climate in our area has become intense in recent years with glare, heat and less humidity. I am now seriously considering using half a part of good quality coconut coir to keep an even moisture content in the pots and prevent microbial fungi overgrowth which can abort or stunt new growths.

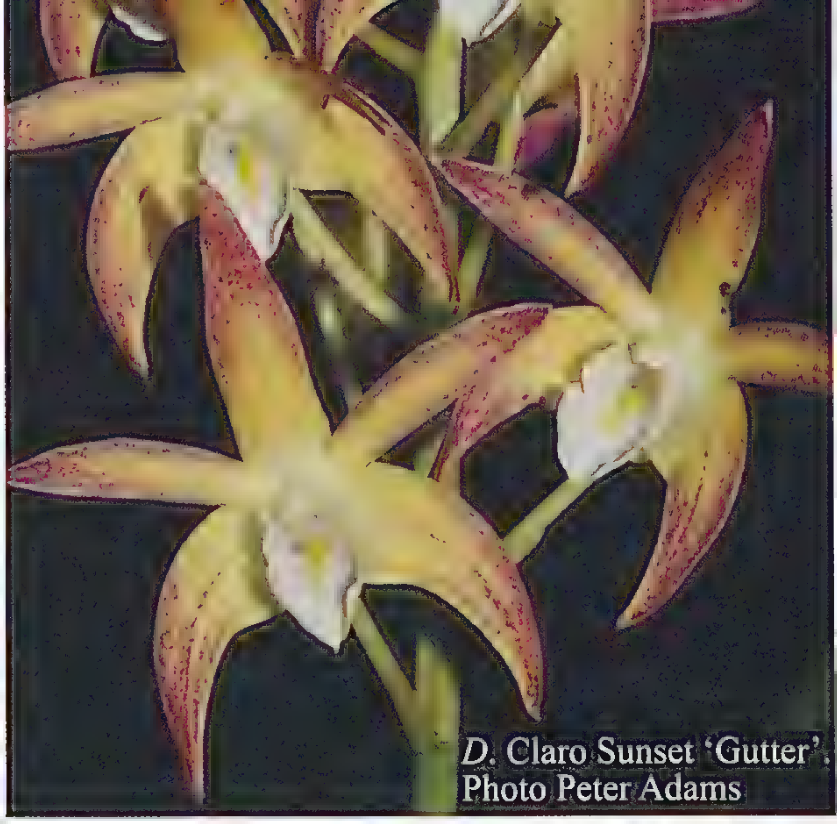
Breeding these relatively slow growing *D. speciosum*-style hybrids is rewarding, with the hope of better quality variously coloured flowers.

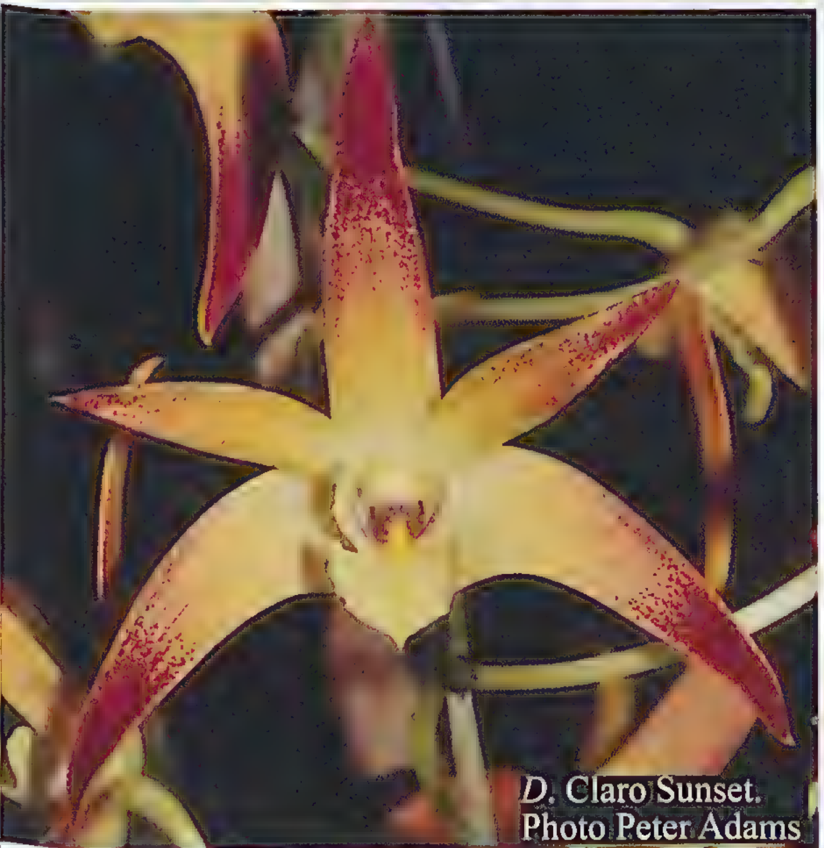
Acknowledgement

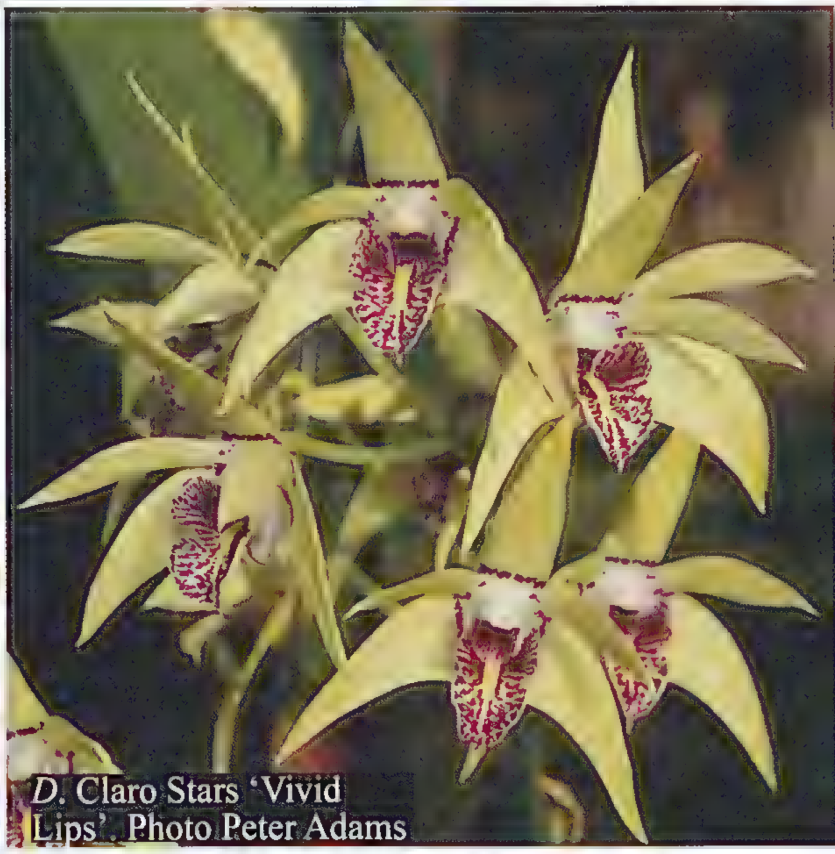
I thank Peter Adams for assistance with the text.

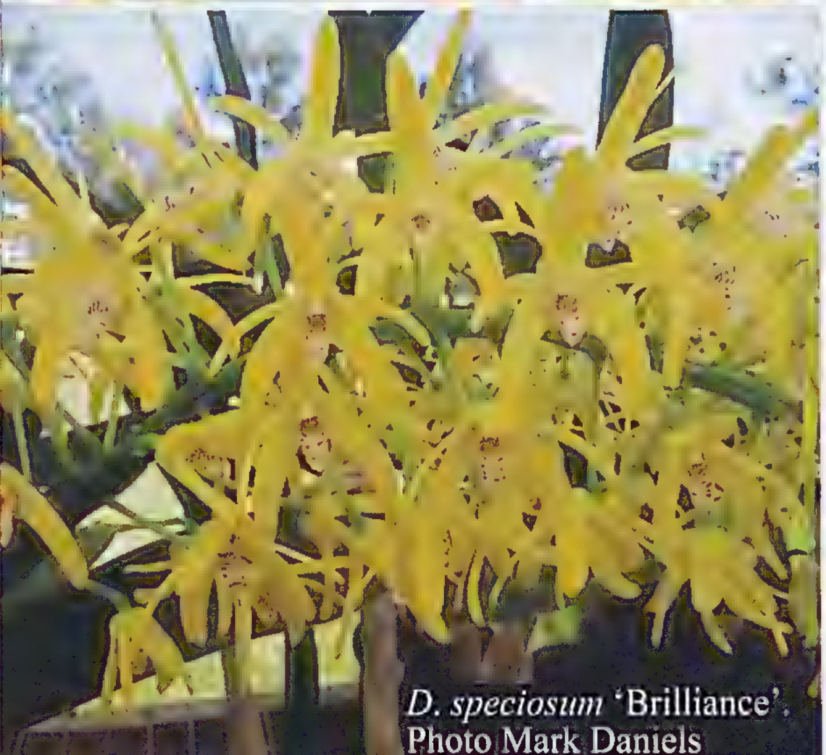
Mark Daniels is a New South Wales specialist *Dendrobium* breeder and innovator of cultural methods.

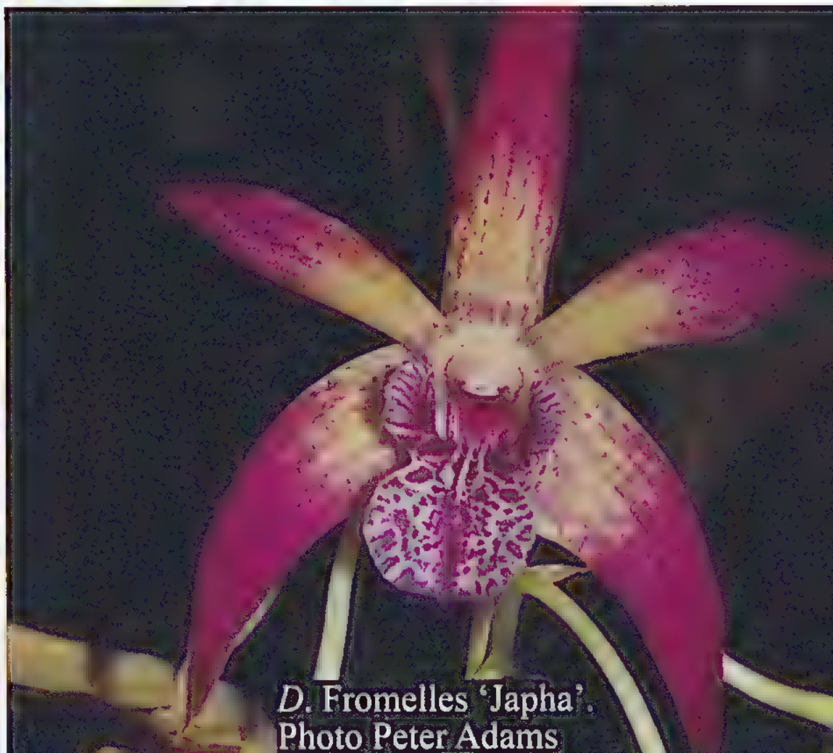

D. Claro Sunset 'Falls Yellow'. Photo Peter Adams


D. Claro Sunset 'Gutter'. Photo Peter Adams


D. Claro Sunset. Photo Peter Adams


D. Claro Stars 'Vivid Lips'. Photo Peter Adams


D. *speciosum* 'Brilliance'. Photo Mark Daniels


D. Fromelles 'Japha'. Photo Peter Adams

Dendrobium affine (Decne.) Steud.

By Grant Paterson
tillandsia@hotmail

Joseph Decaisne first described this species in 1836 as *Onichyum affine* (Nomencl. Bot. ed. 2, 1: 489, 1840). The name is derived from the Latin adjective 'affinis' meaning close, similar. The name applies to a certain similarity to *Dendrobium mirbelianum* Gaudich. (1829).

Synonyms

Onychium affine Decne. (1836); *Dendrobium dicuphum* F.Muell. (1874); *Dendrobium leucolophotum* Rchb.f. (1882); *Callista affinis* (Decne.) Kuntze (1891); *Callista dicupha* (F.Muell.) Kuntze (1891); *Callista leucolophota* (Rchb.f.) Kuntze (1891); *Dendrobium urvillei* Finet (1903); *Vappodes affinis* (Decne.) M.A.Clem. & D.L.Jones (2002); *Vappodes dicupha* (F.Muell.) M.A.Clem. & D.L.Jones (2002).

The species is found in Australia from Groote Eylandt and adjacent mainland around Numbulwar in the Northern Territory, and west to Talbot Bay in the Kimberley region of Western Australia. It is also found in Indonesia on Tanimbar and the Lesser Sunda Islands, Timor Leste, the Maluku Islands and West Papua.

Dendrobium affine is epiphytic and occasionally lithophytic, growing in a variety of forests and open woodlands and scarp country from sea level to 300 m. Host species range from mangroves and paperbarks in moist coastal forests to monsoon vine thicket species and *Cycas* spp. in inland areas. It can be found more than 300 km from the coast in central Arnhem Land where it forms dense colonies on *Cycas* species, in particular within open forests and savannah communities.

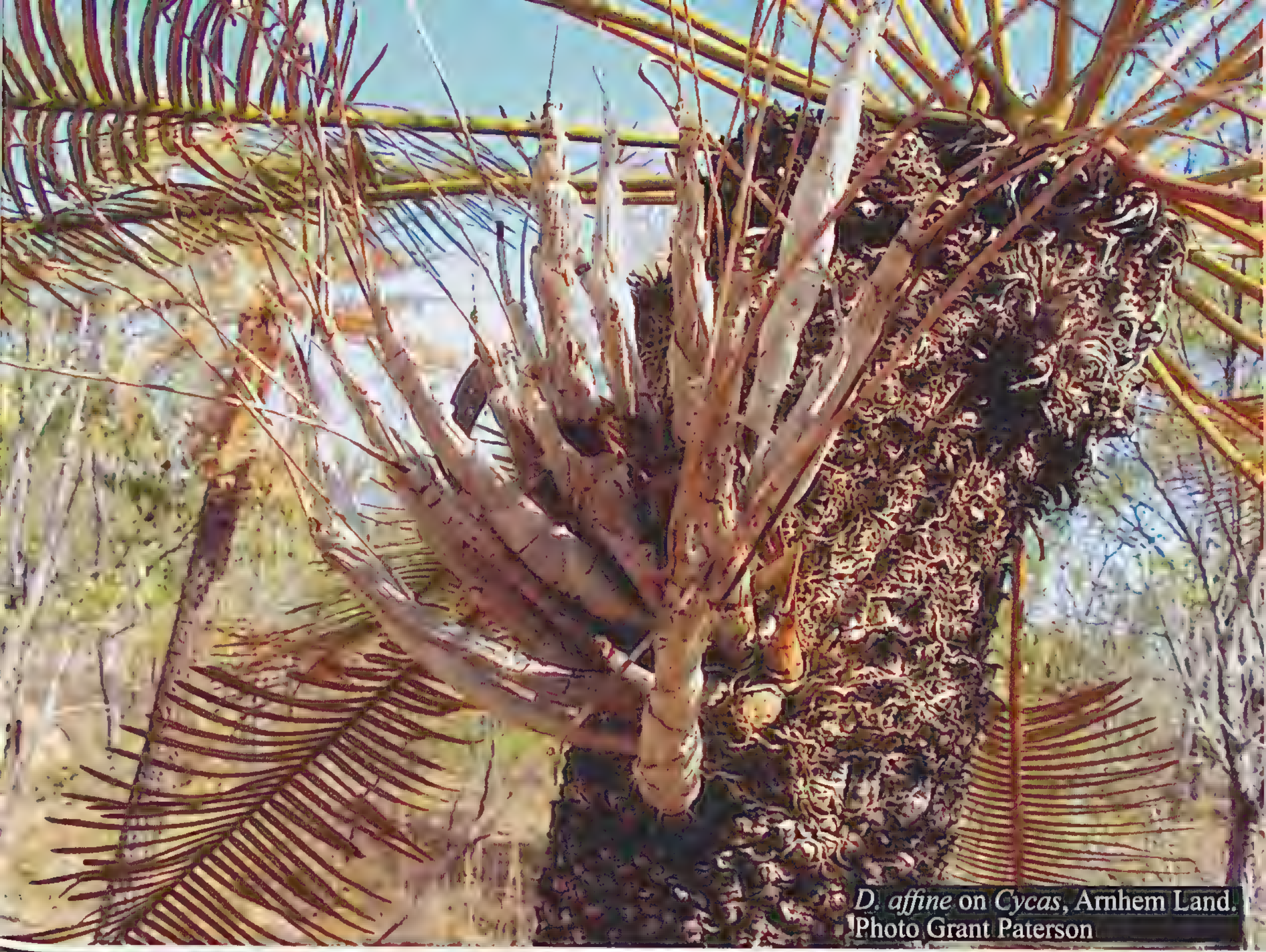
In Australia the plants in coastal swamps and mangrove communities tend to have narrower and longer canes, a growth character they retain in cultivation. Forms from more inland regions tend to have shorter, more robust canes. Plants are occasionally subject to fire in open forest situations, and plants growing on *Cycas* are often scorched and killed by hotter than normal fires. In more arid areas plants are deciduous, often losing leaves by May, and then becoming dormant until the flowers spikes emerge around September. This coincides with the start of the build-up of the storm season. In moist situations closer to the coast it is still deciduous and dormant, but for a shorter period of time.

The hosts I have recorded include *Alstonia actinophylla* (northern milkwood), *Barringtonia acutangula* (freshwater mangrove), *Cycas armstrongii, C. arnhemica* (*Zamia* palms), *Erythrophleum chlorostachys* (Cooktown ironwood), *Livistona humilis* (sand palm) *Nauclea orientalis* (Leichardt tree), *Pandanus basedowii* and *P. spiralis* (screw palms), *Rhizophora stylosa* (stilt mangrove) and *Melaleuca* species (bottle brushes and paperbarks).

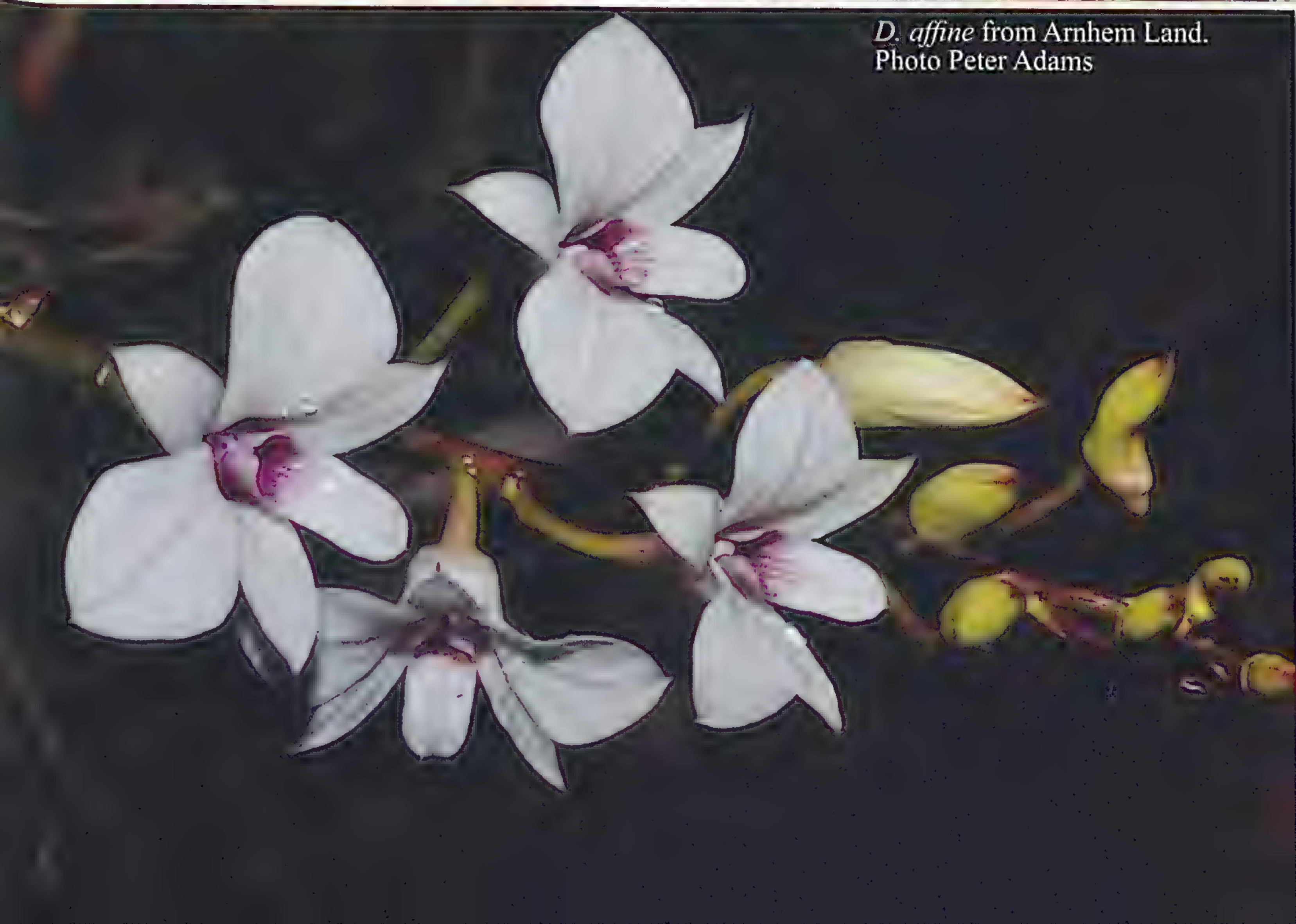
Dendrobium affine has tapered cylindrical pseudobulbs 10–35 cm long with alternate linear-lanceolate leaves with a pointed apex, leathery, glossy and green in colour with occasionally red to purple tint to striping dependent on light levels and growing conditions. Flowers are borne on arcuate, racemose inflorescences 20–50 cm long, from the upper nodes of the pseudobulbs from current and previous years without leaves. Flowers (8–20) are 3–5 cm diameter and open in succession from the basal end of the inflorescence. They are white with a greenish yellow spot at the base of the labellum. Plants from the central Arnhem area and eastern side of the Northern Territory often have a purple red spot at the base of the labellum. Flowers have oblong sepals with a pointed apex; the lateral sepals merge at the base of the column, forming a spur. Petals are ovate to obovate; the labellum is three lobed, with rounded lateral lobes surrounding the column and an oblong central lobe with pointed apex.

Cultivation

This is a very ornamental species with flowers lasting 1–2 months. In tropical areas it can be grown outdoors on living trees with hard non-shedding bark. *Melaleuca viminalis* is a favourite of mine in Mackay, Queensland, for all sorts of epiphytic plants including *D. affine*. In the orchid house plants need good ventilation and



D. affine on *Cycas*, Arnhem Land.
Photo Grant Paterson



D. affine from Arnhem Land.
Photo Peter Adams

air movement, as well as heating if temperatures below 10°C are likely to be experienced. It is amenable to pot culture with substrates of scoria, aged bark chunks 12–20 mm and aggregate, or mixes of all of these. Avoid any media that is likely to decompose quickly, as plants will quickly be lost if they remain too wet. Plants can also be mounted on cork or aged timber slabs but may require more frequent watering in the growing season.

Repot every few years at least, as old roots retain extra moisture and can facilitate rot. Repotting should be done as new growth emerges. Aerials are readily produced by some forms and can be removed and potted once the second season's growth is apparent.

Plants adapt to cultivation readily and are easily grown from seed in culture. Losses can be experienced during and immediately after deflasking if there is not sufficient airflow.

Dendrobium affine requires high light levels and can even tolerate direct sun for most of the day. It is sensitive to temperatures less than15 °C and does not tolerate temperatures under 8°C. Good airflow and high humidity of 70–85% are required in the growing season. Regular watering is essential in the growing season when new growth is occurring, allowing the media to dry out completely before watering. During winter, watering should be reduced to weekly until the weather warms and new growth is evident. Plants are sensitive to salt accumulation and chlorinated water so it is best to use rain water or demineralised water where possible.

Plants respond well to small amounts of slow release fertilised such as Magamp and fortnightly half label strength foliar applications of soluble orchid fertilisers and trace element/ nutrient mixes such as Seasol.

This species is listed in Appendix II of CITES, and international trade is regulated. In Australia it is under threat in populated areas from over collecting of both the plant and its favoured *Cycas* host species. However in remote areas it is common and widespread where conditions suit its requirements. I have observed and counted populations of more than 5000 plants per hectare. The most significant threat to this species is the introduction of exotic grass weeds such as *Pennisetum polystachion* (mission grass) and *Andropogon gayanus* (gamba grass). These grasses dramatically increase the fuel load in the understory of the ecosystems in which *D. affine* grows, and increase the fire intensity and heat at the height that plants grow.

If you travel into the habitat of this or any other species to observe our wonderful flora please ensure vehicles and equipment are free of soil, weed seeds and pathogens.

I recommend those with suitable conditions to give this attractive species a try.

Grant Paterson is an environmental scientist based at Mackay; he has a special interest in central and northern Australian orchids.

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Cultivation of *Phaius* in Mackay, Queensland

Text by Harry Kupke
kupkehr@bigpond.com
Photographs by Jon Cara

Phaius australis F. Muell. (1858) is a terrestrial or geophytic orchid (ground dwelling) occurring from south-east Queensland to north-east New South Wales, and is one of the largest flowered of all Australian orchids. *Phaius tankervilleae* Banks (Blume) 1856 is widely distributed in many countries, and is currently not considered as a valid taxon in Australia. *Phaius bernaysii* Rowland ex H.G. Reichb., which grows in a restricted area of Stradbroke Island near Brisbane, is listed as endangered under Queensland and Commonwealth legislation. More research is needed to determine the relationship of entities variously listed as *Phaius* species.

The first time we saw a *Phaius* plant in flower over 20 years ago it was a "must have" moment. In this article I describe cultural methods that have been successful in Mackay, Queensland.

Description

Phaius have flower racemes up to 2 m tall and large broad leaves up to 70 cm long and 3–10 cm wide, with a pleated appearance. Both arise from fleshy bulbs at ground level. The large, showy, perfumed flowers appear from late August to October, with up to 16 per stem. They are up to 10 cm diameter, with petals which are white outside and brown on the inside. The central tongue of the flower can vary in colour from mauve to a light pink. *Phaius australis* is said to have the column visible between the lateral lobes of the labellum, and have striations on the sepals and petals.

Habitat

Plants are found in swampy grassland or forests where the swamp mahogany (*Eucalyptus robusta*) and broad leaved paperbark (*Melaleuca quinquenervia*) grow. Swamp orchids are almost extinct in the wild due to pressure from the clearing and draining of their natural habitat, sand mining, collection for horticulture, frequent fires, grazing and trampling by domestic stock and feral pigs, and weed invasion. It is estimated that 95% of the original populations have been lost.

Cultivation

They require filtered light in order to flower but can tolerate full sun except for the midday sun; however they do better in lower light conditions. Swamp orchids will grow in a variety of mixes which is dependent on growing conditions and watering regime. Most growers use a combination of bark, sand, perlite or chopped coconut. Plants should be potted up after they have finished flowering. *Phaius* prefer to be kept moist throughout the year, but require less watering during winter, which would reflect what happens in the wild when the swamps dry out during winter.

Fertilising

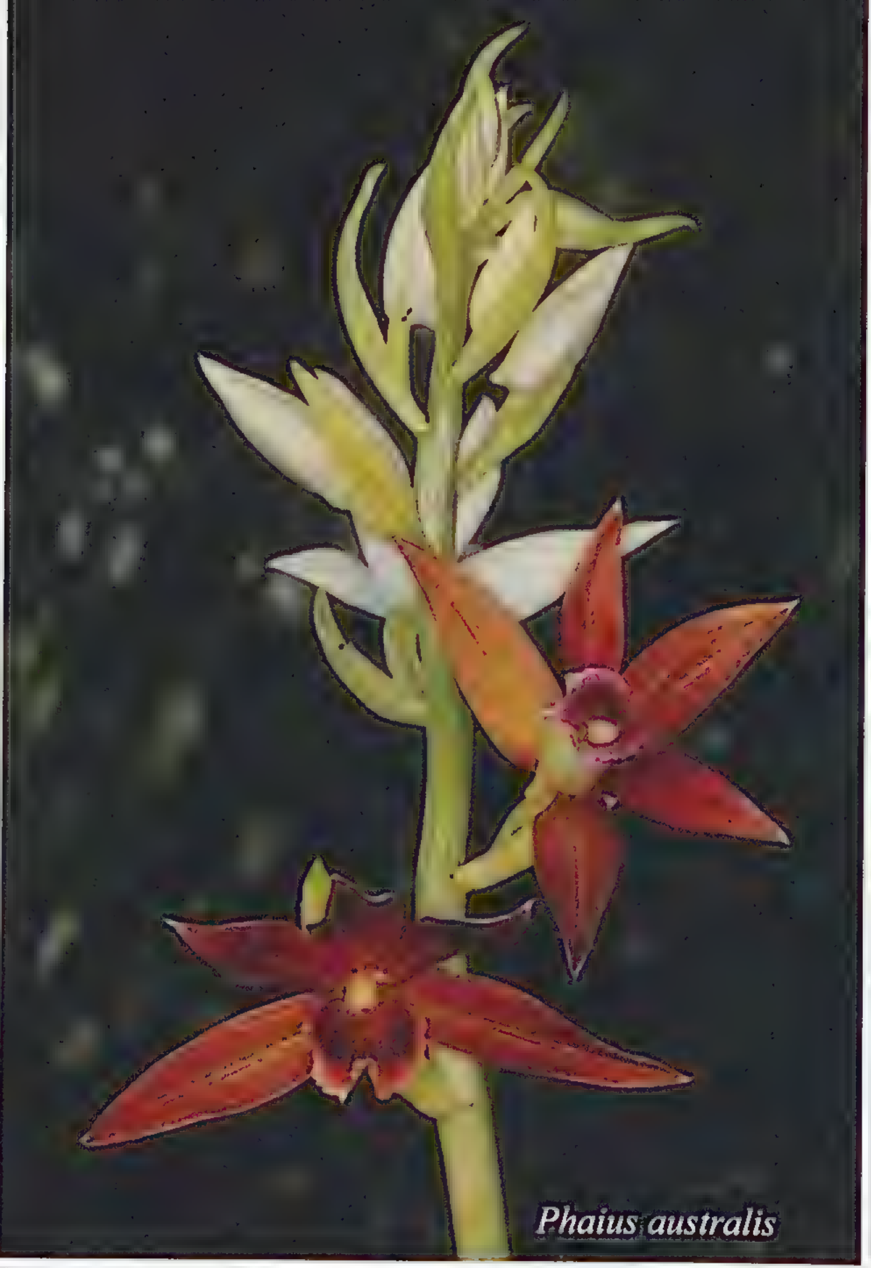
At regular intervals during spring and summer *Phaius* can be fertilised with half strength applications of liquid fertiliser such as fish emulsion and seaweed extract or soluble fertilisers that do not have high nitrogen content. Slow release fertilisers with trace elements can also be included in the fertilising program. Fertilisers with high potassium content will promote flowering.

Pests and Diseases

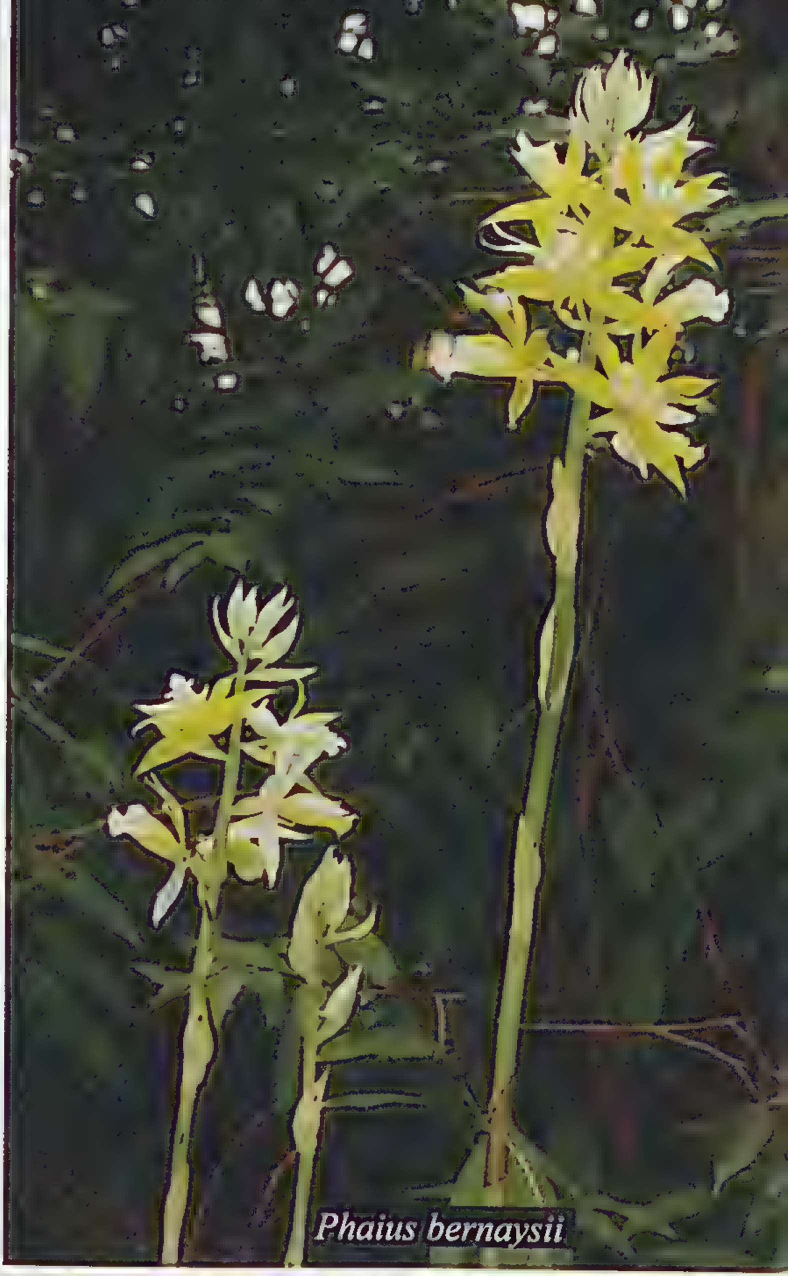
Phaius are not often troubled with pests but mealy bugs and scale can cause damage to the plant and will eventually kill it if not treated. Badly infested leaves should be removed and destroyed by burning and then the plant should be treated with the appropriate pesticide, according to the instructions, at intervals of 10 days until the pest is eradicated. Snails, slugs and cockroaches have been known to eat the tips of young shoots. A systemic insecticide can also help, depending on the pest being treated.

Propagation

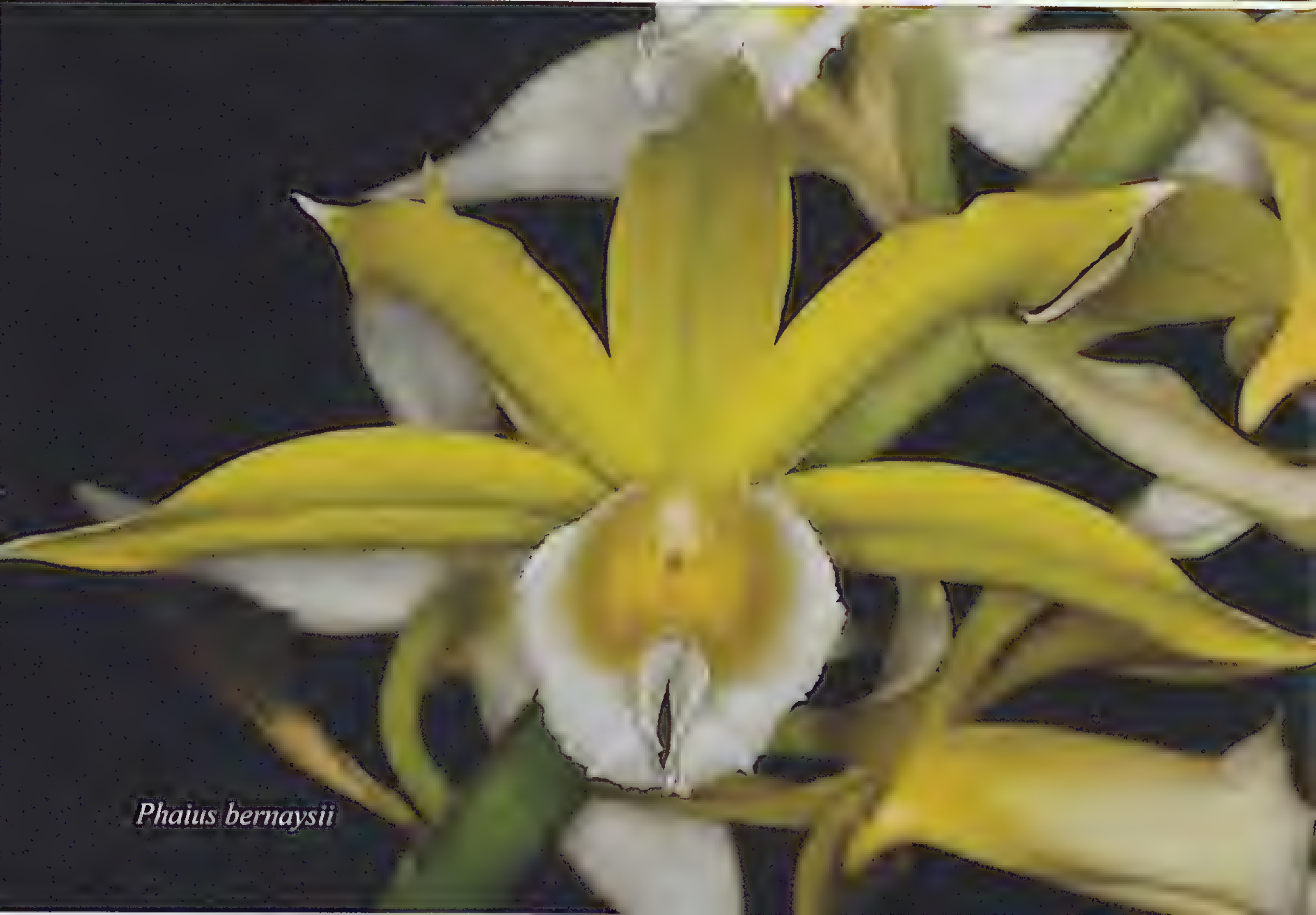
They are relatively easy to grow and can be propagated either from seed or from the flower spikes which need to be harvested immediately after they have finished flowering. The stem can be cut into sections and planted into a free draining mix with at least two nodes buried or lay the whole flower spike down on a bed of free draining mix



Phaius australis



Phaius bernaysii



Phaius bernaysii

and only half cover the stem. Plantlets emerge from the nodes and when large enough can be removed and potted up.

Protection

For *Phaius* to be available for future generations to appreciate in the wild, the following measures need to be followed:

Ensure plants are only purchased from licensed suppliers

Discourage wild collection

Identify and control problem weeds

Exclude pigs and livestock from known areas where they currently exist

Carry out some form of fire management in known habitat areas

Try to minimise clearing, draining and development of known habitat areas

Promote awareness of their vulnerability.

Harry Kupke is a specialist grower of tassel ferns, ant plants and *Phaius* in Mackay, Queensland.

2016 Australian Orchid Foundation Award of Honour

By Geoff Stocker

Mr. Philip Spence, a well-known hybridizer and grower of orchids from Australia and the Pacific region, was presented with the Australian Orchid Foundation Award of Honour for 2016.

Orchids became a full time occupation in 1997 when he was appointed to be Director of the Research Centre of the National Capital Botanic Gardens, Port Moresby. Here his main duty was to explore the potential for establishing a cut flower industry based on the orchids native to the region. To achieve this a library was established, expeditions mounted to collect new and poorly known species, a hybridizing programme begun, laboratory and herbarium established, and staff trained in all aspects of orchid cultivation.

Phil's returned to Australia in 2000 and has continued the work of documentation and hybridization, becoming an Honorary Research Associate of the Herbarium of Sydney Botanic Gardens. Currently his major taxonomic interest centres on the *Dendrobium spp*. of section *Latouria*.

The size and depth of his work as a hybridizer is clearly shown in Sanders lists where, in relation to hybrids within the genus *Dendrobium*, it is revealed that he has been the second most prolific worker in the field. In a lifetime of involvement with orchids Phil's contribution to the scientific, pot plant and cut flower sectors of the industry is well documented in local and international journals and in his participation in conferences here and overseas.

In recent years Phil has led many field trips to PNG. These have provided practical insights into the ecology of this rich environment. The knowledge gained by participants has greatly assisted growers determined to cultivate this beautiful group of orchids.

Philip Spence with *Dendrobium finisterrae*
Photo by Justin Tkatchenko

Developing a *Diuris* hybrid

Keith Stringer
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I have been growing orchids for 20 years and joined ANOS Victorian Group in 2007. I developed a passion for the challenge of growing terrestrial orchids from seed and I have had some success and lots of enjoyment. Learning how to pollinate and then grow various species from seed is very rewarding. I greatly enjoy growing *Diuris* and thus arose the personal challenge for me to create a quality hybrid. My objective was to cross *Diuris sulphurea* and *D. orientis* to create a more attractive plant by introducing the stronger brown tones of *D. sulphurea* to the *D. orientis* flower. An example of the natural cross was observed on a field excursion to Cann River in October 2010 and photographed by Neil Anderton.

The tasks were completed over a four year period from pollination to a successful show exhibit.

Pollination

Pollination was completed in October 2011. The flowers were pollinated using a sharp tooth pick to remove the pollinia from the selected flower of each plant. The pollinia were then placed on the sticky pad at the inside base of the flower of the other species. The pollination was done both ways: *D. sulphurea* to *D. orientis* and the reverse. The flowers that had been successfully pollinated shrivelled after a few days and the seed pods began to develop.

Seed

Seed was collected in December 2011. To collect the seed I observed my plants until the seed pods developed strong ribs as they matured. They darkened slightly in colour, firmed to touch, and had the appearance of being brittle. I removed the pods from the plant, put each of them in a paper envelope and placed them on a sunny window ledge to completely dry and dehisce. Seed was then cleaned from the husk and kept in the refrigerator.

Seed was sown into flasks 4th February 2012. All seeding activity is processed under sterilized conditions in a laminar flow cabinet. This process is accessible to ANOS (Vic) members at the Terrestrial Seed Group monthly meeting. I commenced the process by rinsing the seed in a 10% bleach solution (White King) for 8 minutes to remove any contaminants. Seed was then rinsed in sterile water to remove bleach and sown in small flasks by spreading small amounts of seed over an agar based media purchased from Western Orchids. The flasks were sealed to prevent contamination and stored in a dark cupboard at 18–20°C until germination. When the plants were showing green shoots they were transferred to a light cabinet for further development and growth.

Seedlings were replated 7th July 2012. As there is usually a lot of replating to be done, this is a good time to share flasks with other members of the group. When seedlings have grown to approximately 15–20 mm we replate them into larger flasks, reducing the number of plants to about 20 per flask, and return them to the light cabinet for future growth and development of tubers. After a period of 6–7 months, tubers were obvious in the flasks.

Small tubers were deflasked in March 2013. From experience I know that the period after deflasking is when most plants die, thus I take great care when deflasking and after deflasking. Care is taken not to damage the small plants and tubers when transferring to pots. I like to deflask when the existing shade house plants begin their growing cycle (February–March).

Culture

I deflask into a suitable terrestrial potting mix with some added leaf mould and place it in a reasonably bright area protected from the elements, keeping it moist but not wet. To deflask the tubers/plants I lift the tubers from the agar with long tweezers without damaging the plants. I then brush any excess growing media from the tubers. Once established I grow the plants in a bright shade house with a solid roof and a layer of shade cloth added. As *Diuris* plants grow and flower better if they are not disturbed each year, I work on a cycle of repotting each fourth year.

When potting *Diuris orientis* tubers, which are long and thin (referred to as spaghetti tubers), I use a 200 mm diameter pot. I plant six to eight tubers horizontally, as they may grow from both ends of the tuber, at a depth of approximately 50 mm. This depth is chosen to give stability of the plant in its pot. The larger pot gives the tubers room to multiply and bunch up in the pot over the next four years.

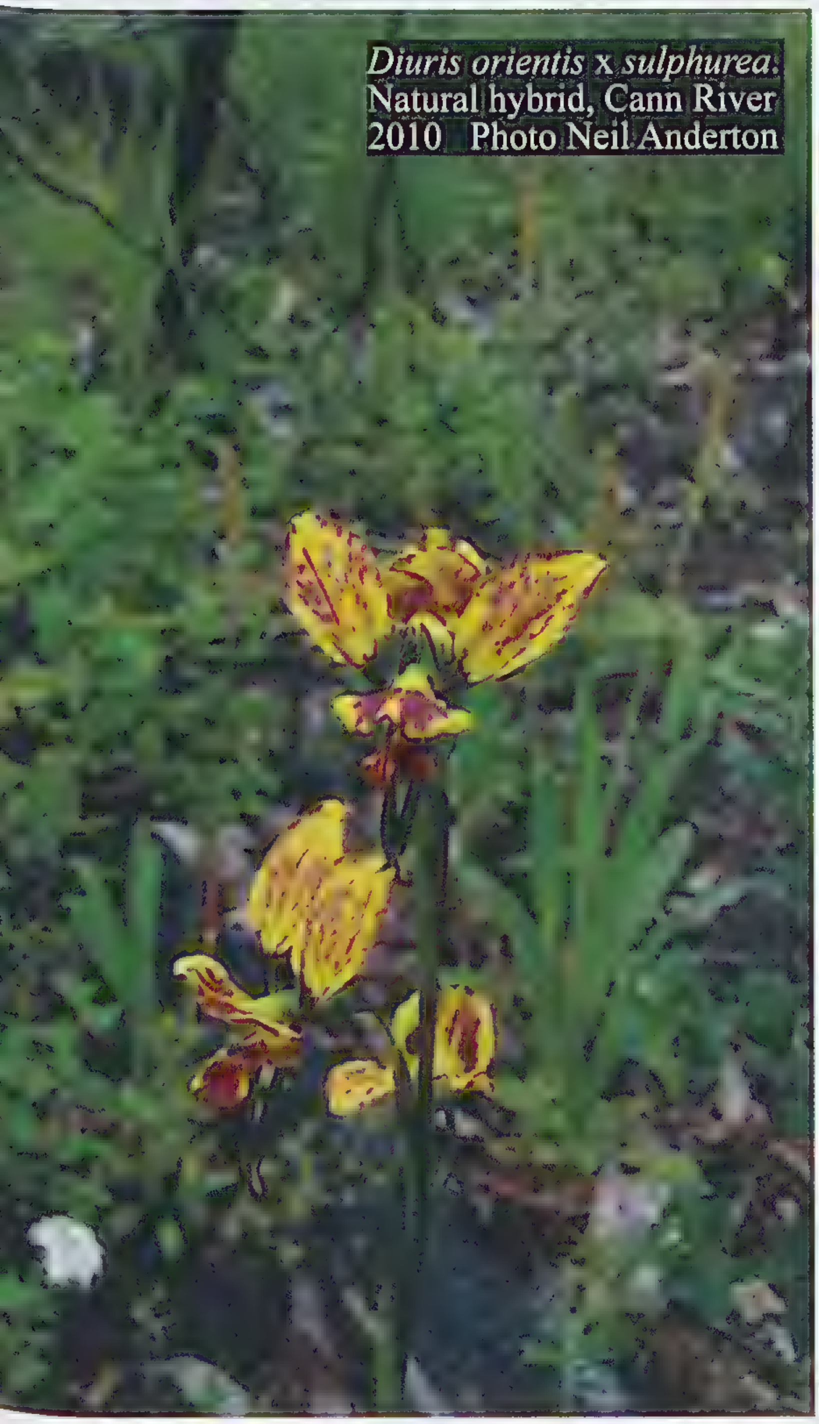
Results

The tubers of the hybrid plants are similar to those of *D. orientis* although they are not as long due to the influence of *D. sulphurea*, which has a shorter and thicker tuber. The first flowering was in September 2014 when there were several strong plants, but only one flowered. The flowering in September 2015 was quite spectacular, the pot being awarded Best Native Terrestrial Hybrid at the ANOS (Vic) Spring Show.

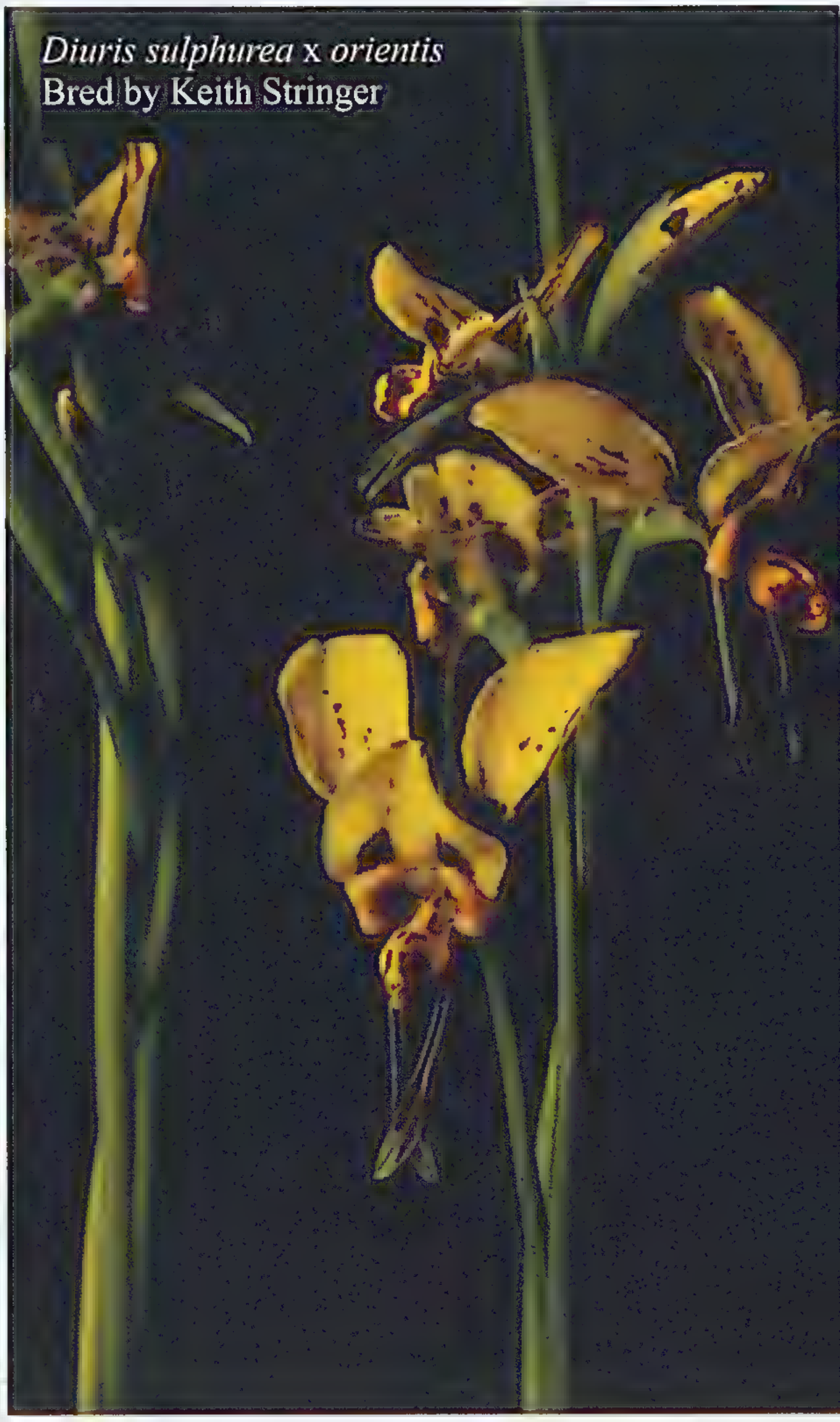
The result of this hybridization produced stronger plants that were approximately 25% larger than the parents, and flowers that were also 25% larger than the parents. The hybrid had extra brown markings on the flowers but not to the extent desired.

Whilst I did not achieve the level of brown markings that I had hoped for, I will further develop this hybrid by pollinating some *D. orientis* flowers with another plant of *D. sulphurea* in an endeavor to gain a more intense colour. I would also like to hybridize other *Diuris* with *D. drummondii* with the aim of producing taller more attractively marked flowers.

Keith Stringer grows both Australian and exotic orchids.



Diuris orientis x *sulphurea*. Natural hybrid, Cann River 2010 Photo Neil Anderton



Diuris sulphurea x *orientis*
Bred by Keith Stringer

From The National Registrar of Judges

Dave Groffen

I've only held this office since the beginning of September, so much of the credit for the progress of the ANOS Judging system goes to Ray Clement, the previous Registrar.

The revision of the Judges Handbook has been a long term project and has resulted in the publishing of Version 6.08 of the handbook which replaces all previous versions. The handbook is available for download from the ANOS website under the Judging tag. There are still a number of suggestions for changes to the handbook to be fully considered and these may lead to a further revision being published, hopefully before the next major spring flowering season.

At the time of writing there have been 26 awards granted in 2016, all but one during the spring flowering season from August to October, 18 of these were granted at the ANOS Conference at Kempsey. This is a clear indication of the quality of species and hybrids, and their superior culture, on display at the conference.

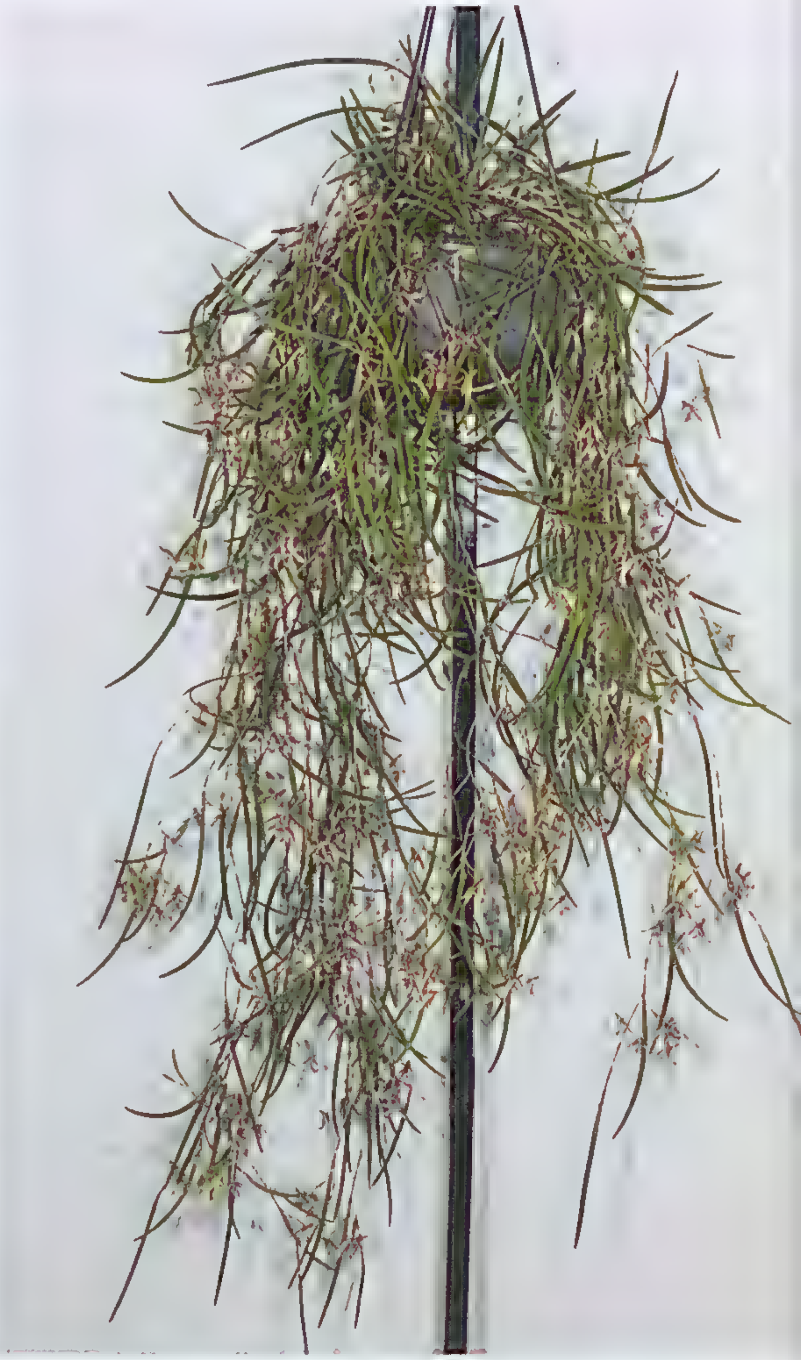
It is pleasing to note that the Victorian panel now has sufficient full judges to consider plants for awards and 5 awards were granted in Victoria.

The future looks bright for recognition of superior clones of ANOS eligible orchids as the number of fully qualified judges continues to increase due to the successful running of training course in all 3 of the eastern states. In total NSW has 27 judges, Northern Regional has 17 and Victoria has 11. There is still some way to go in SA and WA and regional areas generally.

It is difficult to convene a panel of 5 full judges in those areas and at times growers either miss out altogether on recognition for their plants and/or their cultural efforts or settle for AOC awards where its' panels are available. There is value in AOC awards, of course, and they are not to be denigrated, but in my opinion having a plant assessed by judges specifically trained to recognise quality in the range of plants eligible for ANOS judging is more appealing.

Accordingly, I believe that methods of assessing orchids remotely, where a full panel of judges cannot be physically present, should be seriously considered and tested with an eye to implementing a reliable system in the near future. It is essential that such a system will not lead to a lowering of the currently high standard of judging.

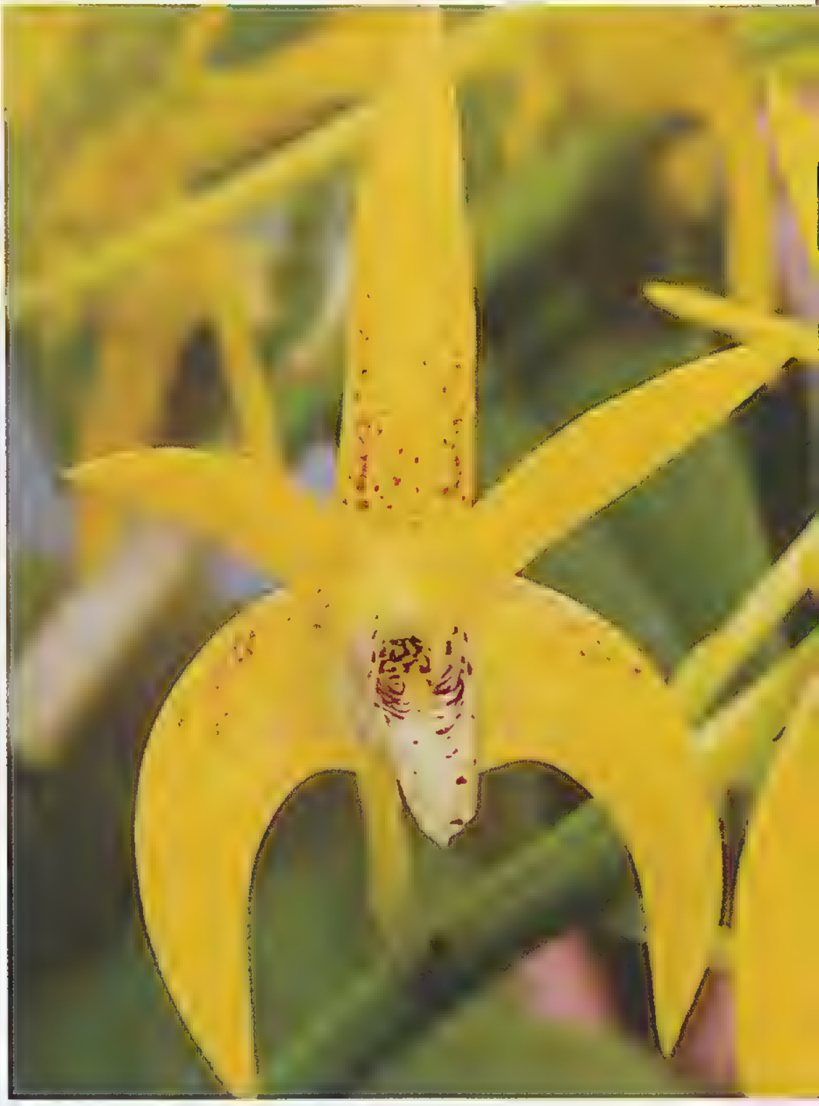
A small trial of remote award judging during the 2016 flowering season was successful with scores in the range of judges on site. Comments and suggestions are welcome.



Dendrobium Australian Freckles 'Best Blue' AM/ANOS 2016 (NSW) Owner: Graham Young & Callyn Farrel

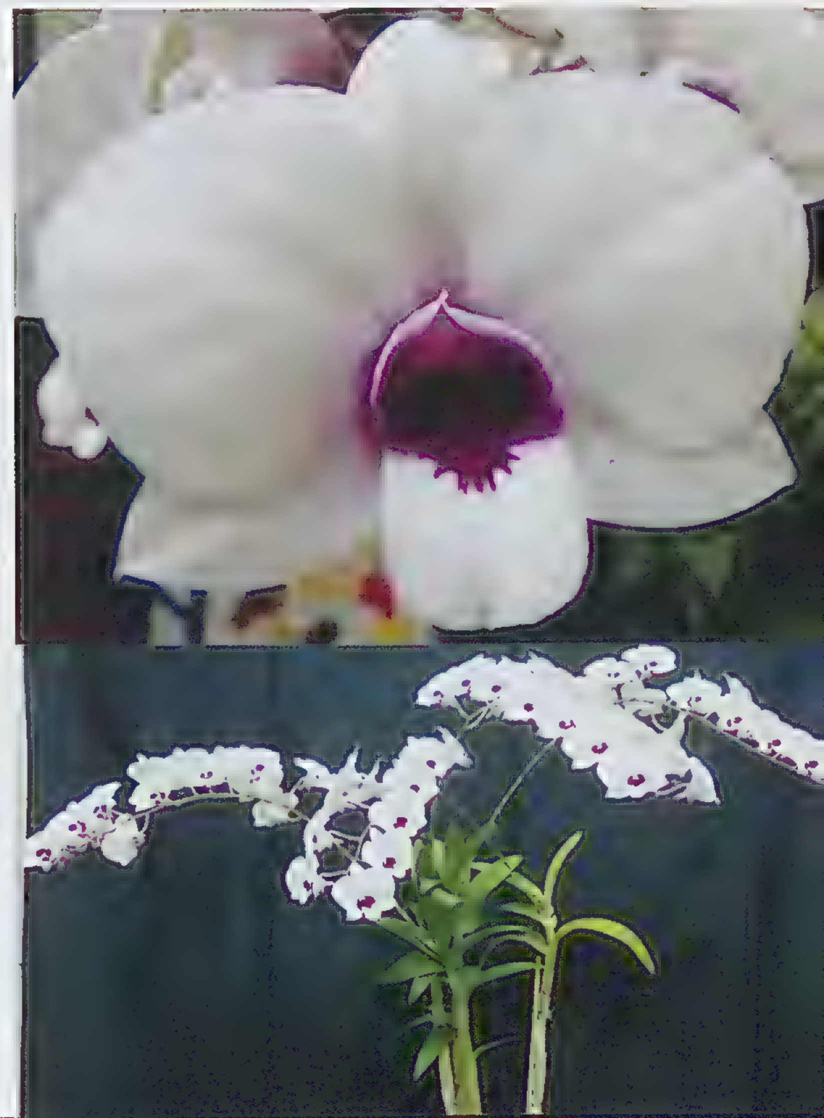
#232 *Dendrobium* Avril's Gold 'MD' HCC/ANOS 2016 (VIC)

Points	77.3
Owner	Michael Drobski
Date	23 Aug 2016
Event	special judging
Photos by	Peter Adams
Number of:	
flowers	230
inflorescences	7
Measurements(mm):	
flower across	63
vertical	70
petal	32L 4W
sepal	28L 13W
dorsal	35L 10W
labellum	15L 8W
raceme avge length	
Detailed avge points:	
shape(25)	19.0
colour(20)	15.6
size(15)	11.6
substance/texture(10)	7.6
floriferousness(15)	12.0
habit/attractive(15)	11.5



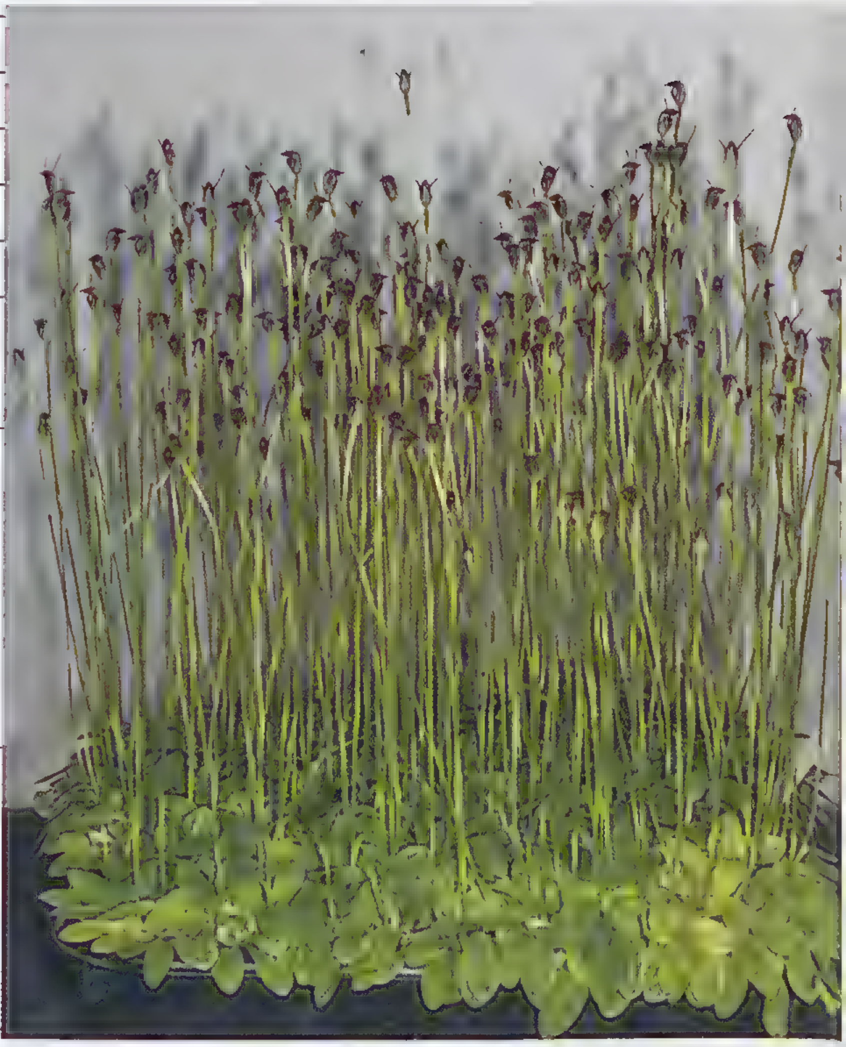
#233 *Dendrobium* Asternova Snow Drop 'Kathy' AM/ANOS 2016 (QLD)

Points	80.8
Owner	D & K Wanka
Date	04 Oct 2016
Event	
Photos by	
Number of:	
flowers	60
inflorescences	4
Measurements(mm):	
flower across	64
vertical	56
petal	31L 35W
sepal	28L 17W
dorsal	28L 15W
labellum	27L 17W
inflorescence length	530
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



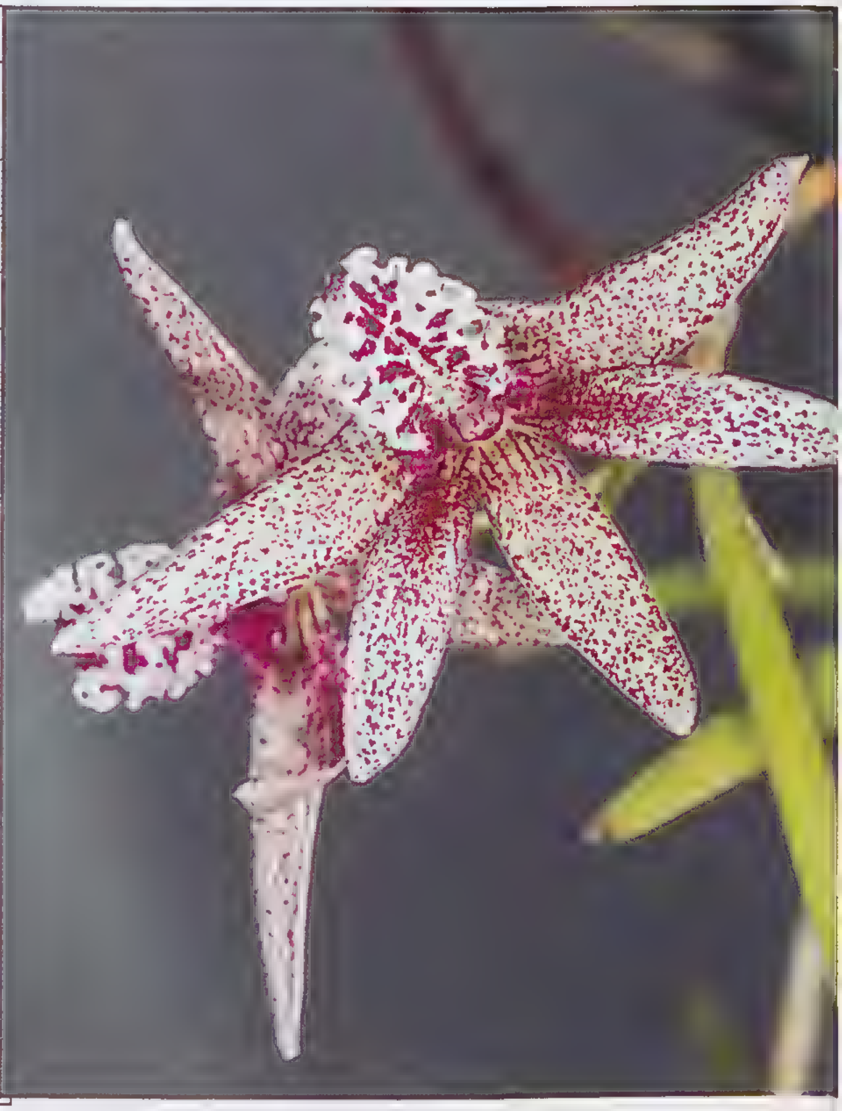
#234 *Pterostylis pedunculata* 'Kevin' ACC/ANOS 2016 (NSW)

Points	82.57
Owner	K & S Hilton
Date	27 Aug 2016
Event	
Photos by	
Number of:	
flowers	204
inflorescences	204
Measurements(mm):	
flower across	20
vertical	35
petal	
sepal	
dorsal	
labellum	
raceme avge length	
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



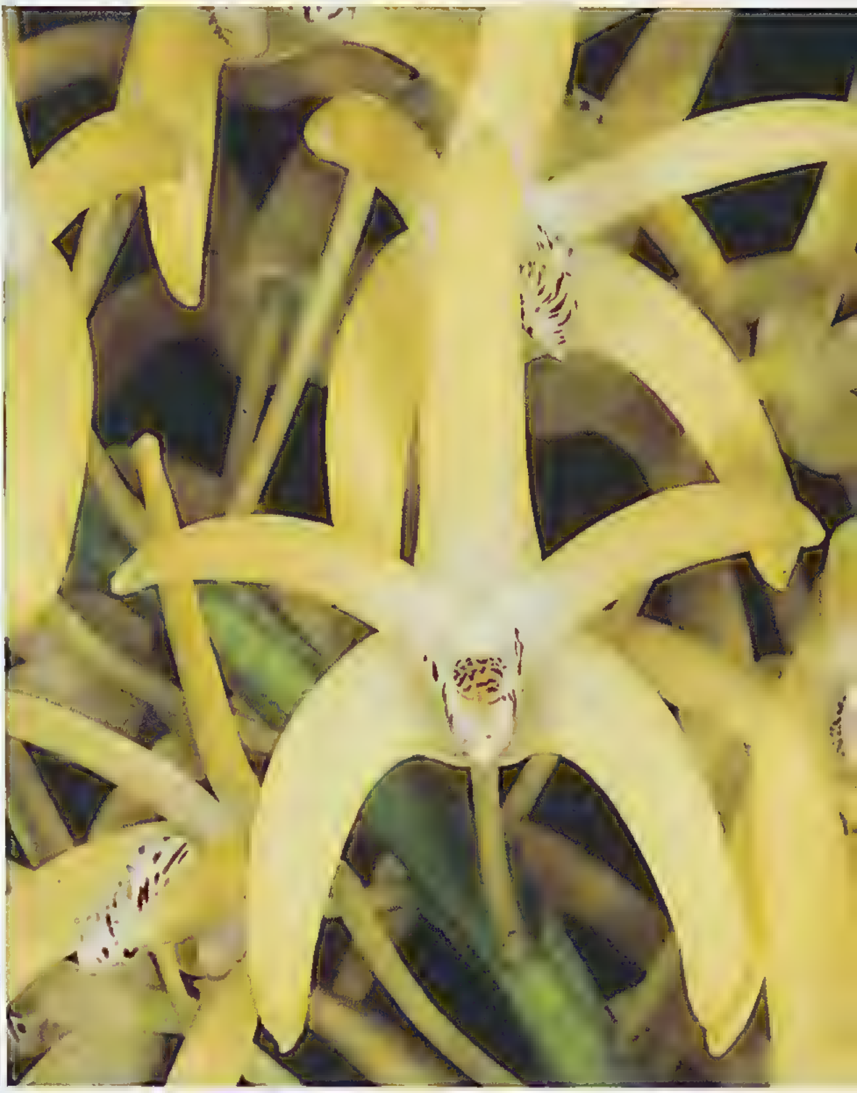
#235 *Dendrobium* Australian Freckles 'Best Blue' AM/ANOS 2016 (NSW)

Points	81.86
Owner	Graham Young & Callyn Farrel
Date	27 Aug 2016
Event	
Photos by	
Number of:	
flowers	276
number of buds	35
inflorescences	110
Measurements(mm):	
flower across	38
vertical	20
petal	20L 4W
sepal	20L 5W
dorsal	25L 5W
labellum	20L 8W
inflorescence length	530
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



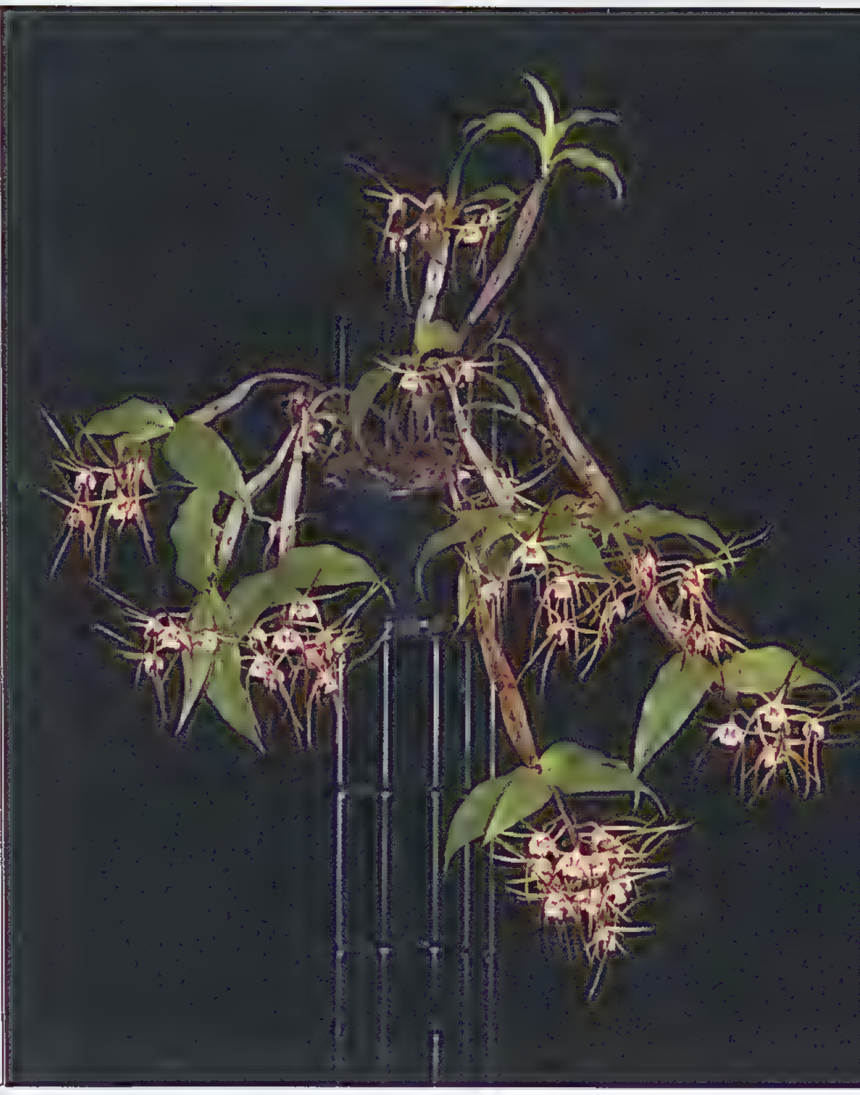
#236 Dendrobium speciosum var. curvicaule 'Palmerston Mist Olive' HCC/ANOS 2016

Points	77.44
Owner	Ted & Winsome Walmsley
Date	2 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	270
inflorescences	3
Measurements(mm):	
flower across	45
vertical	60
petal	37L
sepal	28.6L 7.5W
dorsal	34L 7W
labellum	12.8L 7.7W
inflorescence length	500
Detailed avge points:	
shape(25)	19.7
colour(20)	16
size(15)	11.7
substance/texture(10)	7.7
floriferousness(15)	11.0
habit/attractive(15)	11.4



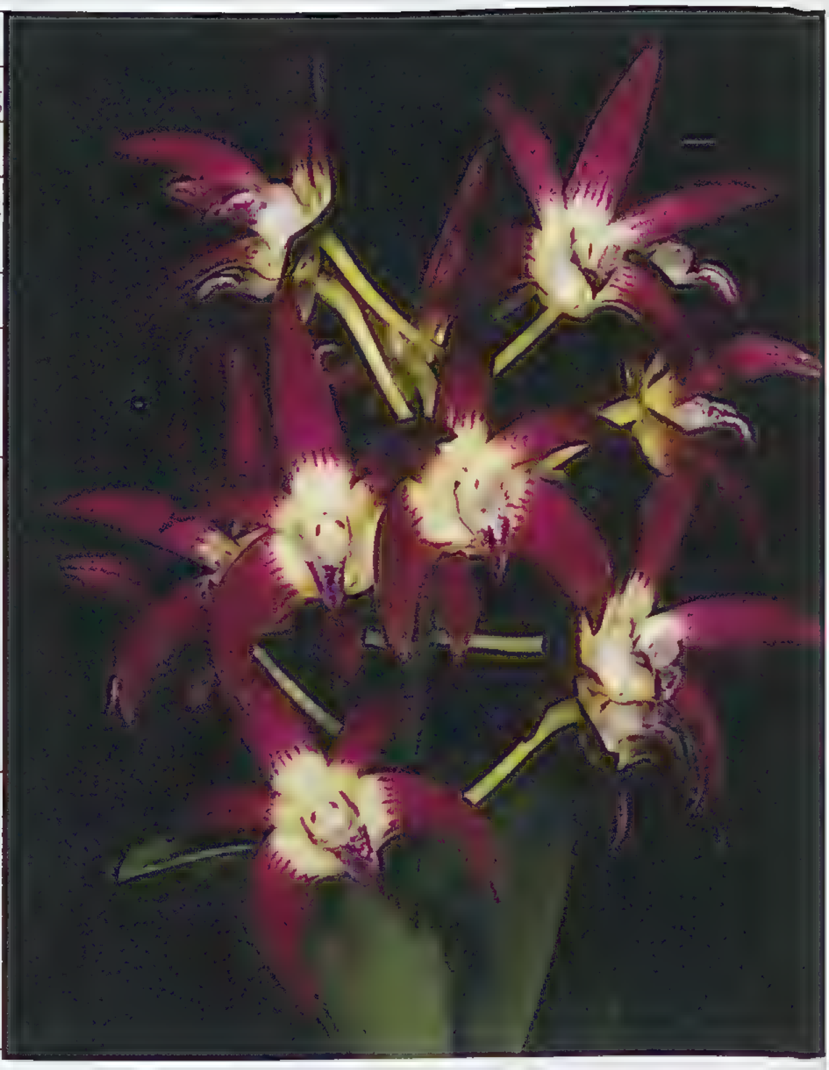
#237 Dendrobium tetragonum 'Jess' HCC/ANOS 2016

Points	79.38
Owner	David Butler
Date	2 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	61
number of buds	0
inflorescences	15
Measurements(mm):	
flower across	31
vertical	56
petal	18L 2.5W
sepal	29L 4.5W
dorsal	29L 4.5W
labellum	6.3L 6.3W
inflorescence length	40
Detailed avge points:	
shape(25)	19.8
colour(20)	16.4
size(15)	11.8
substance/texture(10)	7.5
floriferousness(15)	12.0
habit/attractive(15)	11.8



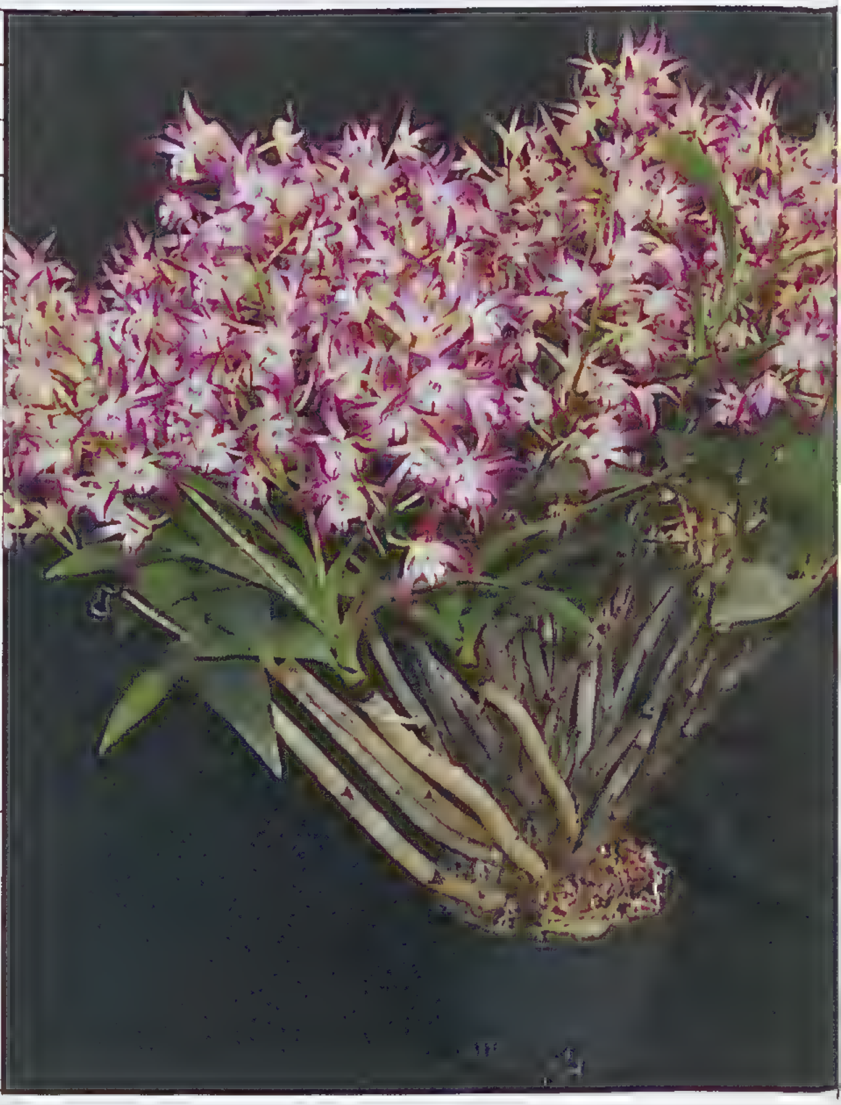
#238 *Dendrobium* Rainbow Glow 'Koori' AD/ANOS 2016

Points	Colour
Owner	Henk van den Berg
Date	2 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of: flowers inflorescences	 12 1
Measurements(mm): flower across vertical petal sepal dorsal labellum inflorescence length	
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	



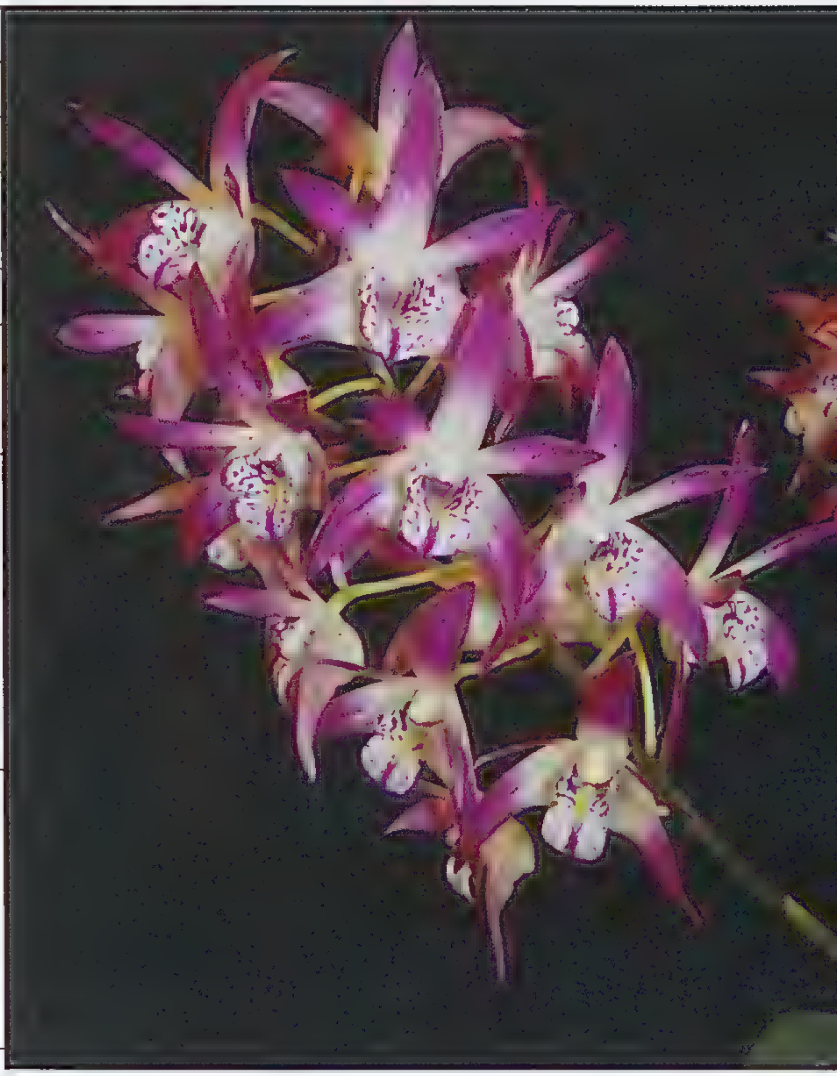
#239 *Dendrobium* Class 'Windsor Downs' ACC/ANOS 2016

Points	81.3
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of: flowers number of buds inflorescences	 765 0 51
Measurements(mm): flower across vertical petal sepal dorsal labellum inflorescence length	 29 39 10L 3W 15L 8W 16L 8W 13L 10W 150
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	



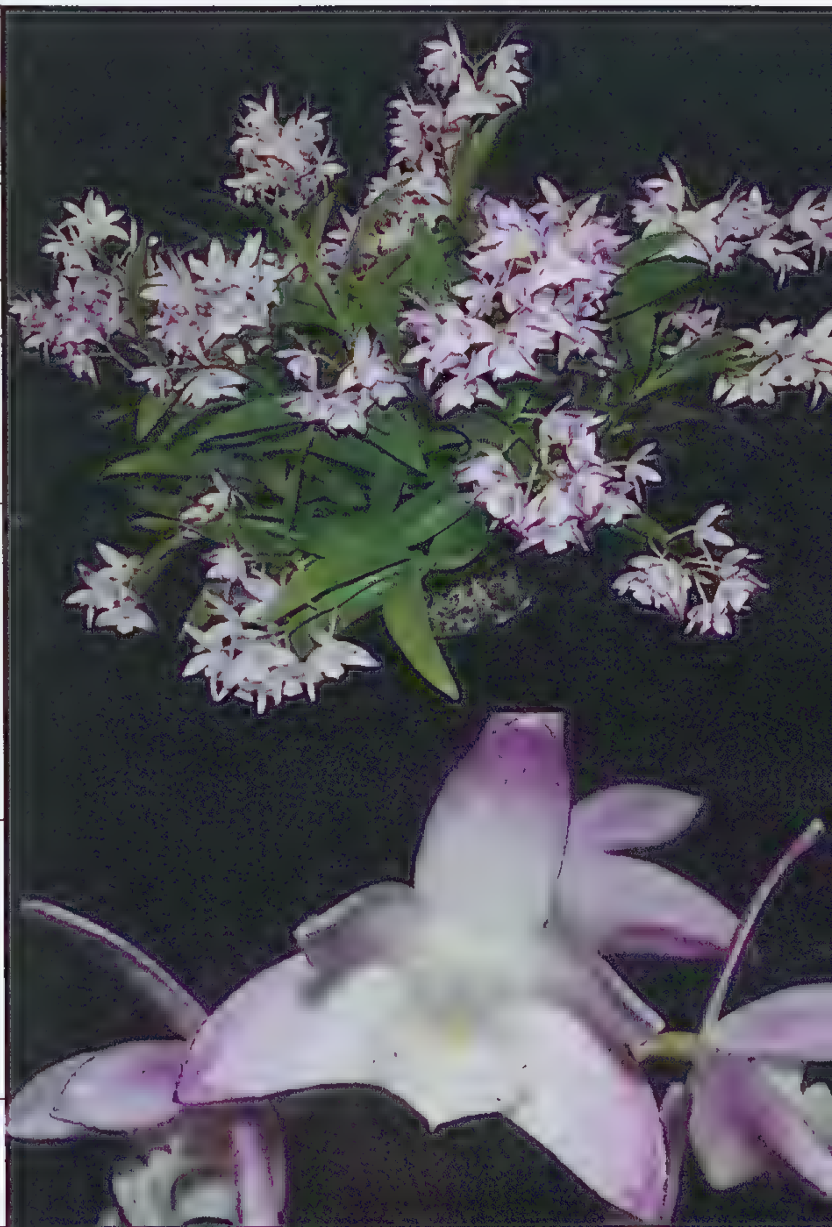
#240 Dendrobium Class 'Windsor Downs' HCC/ANOS 2016

Points	77.44
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	765
inflorescences	51
Measurements(mm):	
flower across	29
vertical	39
petal	10L 3W
sepal	15L 8W
dorsal	16L 8W
labellum	13L 10W
inflorescence length	150
Detailed avge points:	
shape(25)	19.8
colour(20)	16.7
size(15)	11.3
substance/texture(10)	7.7
floriferousness(15)	12.3
habit/attractive(15)	12.1



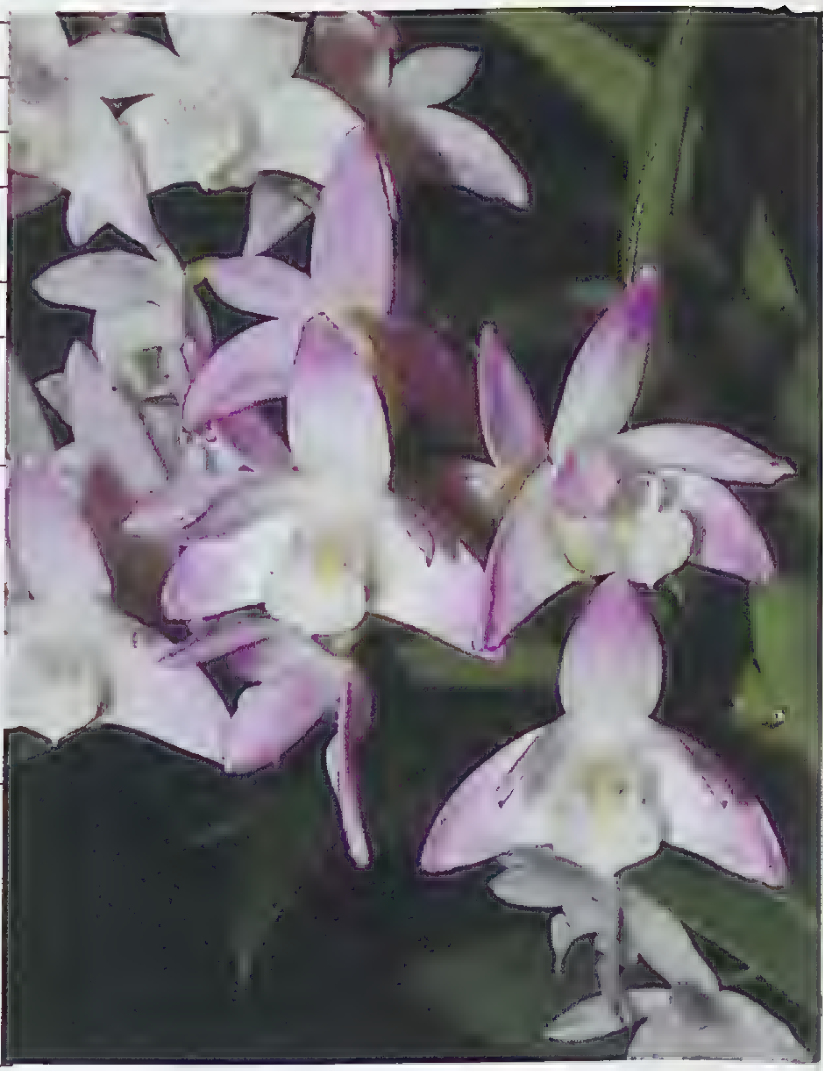
#241 Dendrobium Bardo Rose 'Super' ACC/ANOS 2016

Points	76.9
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	217
number of buds	0
inflorescences	31
Measurements(mm):	
flower across	35
vertical	30
petal	15L 5W
sepal	18L 9W
dorsal	16L 10W
labellum	12L 10W
inflorescence length	160
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



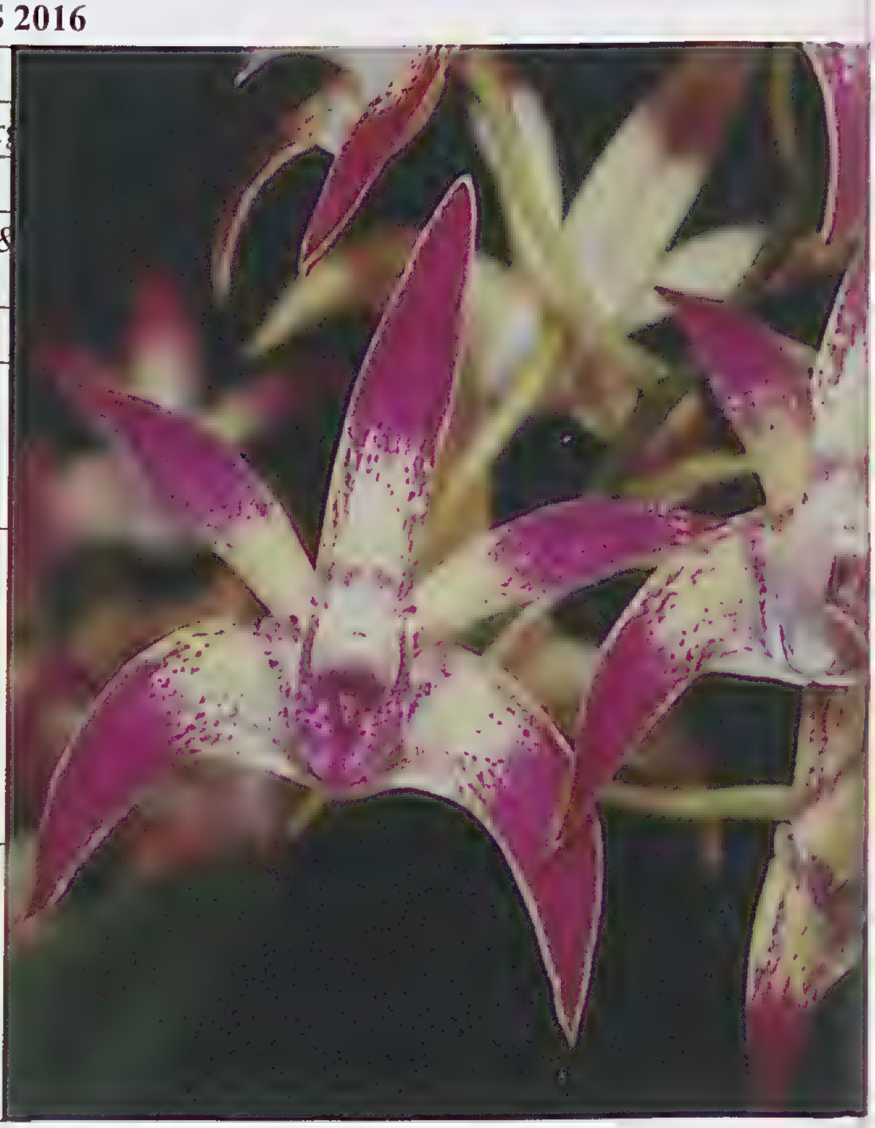
#242 *Dendrobium* Bardo Rose 'Super' HCC/ANOS 2016

Points	78.2
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	217
inflorescences	31
Measurements(mm):	
flower across	35
vertical	30
petal	15L 5W
sepal	18L 9W
dorsal	16L 10W
labellum	12L 10W
inflorescence length	160
Detailed avge points:	
shape(25)	21
colour(20)	16.1
size(15)	11.8
substance/texture(10)	7.7
floriferousness(15)	11.2
habit/attractive(15)	11.4



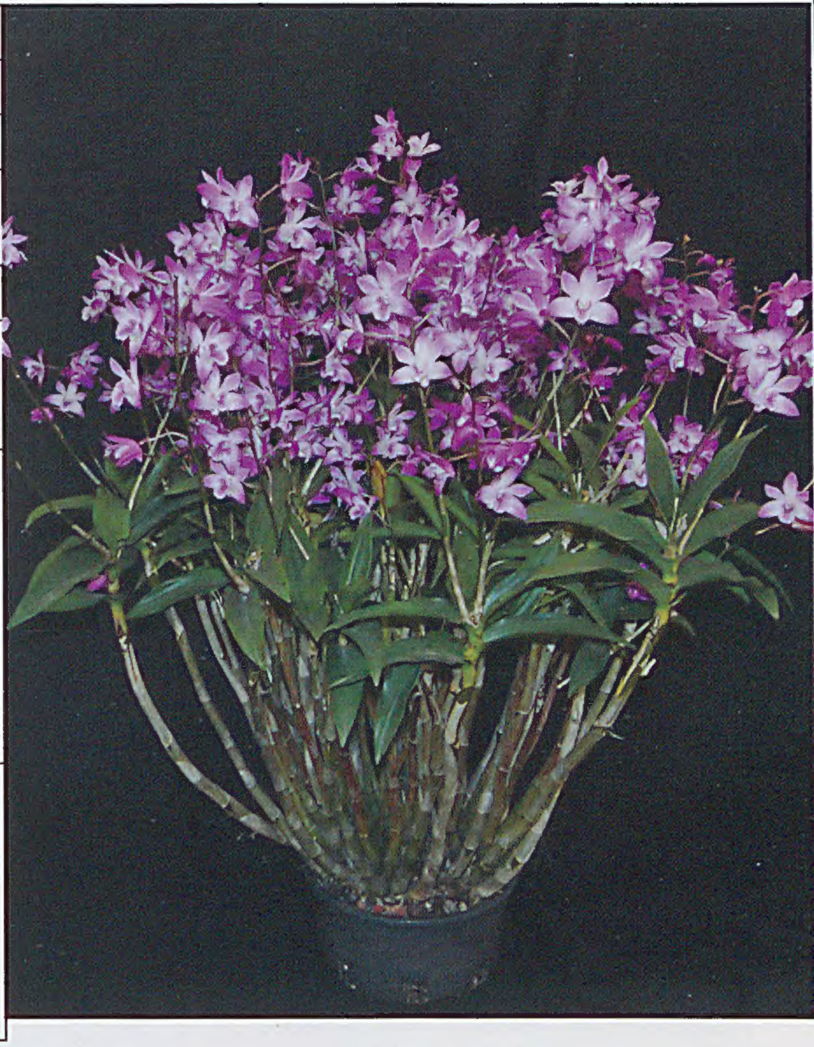
#243 *Dendrobium* Awespot 'Ang' ACC/ANOS 2016

Points	76.4
Owner	Henk van den Ber
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of:	
flowers	118
number of buds	0
inflorescences	12
Measurements(mm):	
flower across	11.3
vertical	55
petal	19L 8W
sepal	28L 12W
dorsal	28L 10W
labellum	20L 11W
inflorescence length	200
Detailed avge points:	
shape(25)	19
colour(20)	15.7
size(15)	11.9
substance/texture(10)	7.6
floriferousness(15)	10.9
habit/attractive(15)	11.3



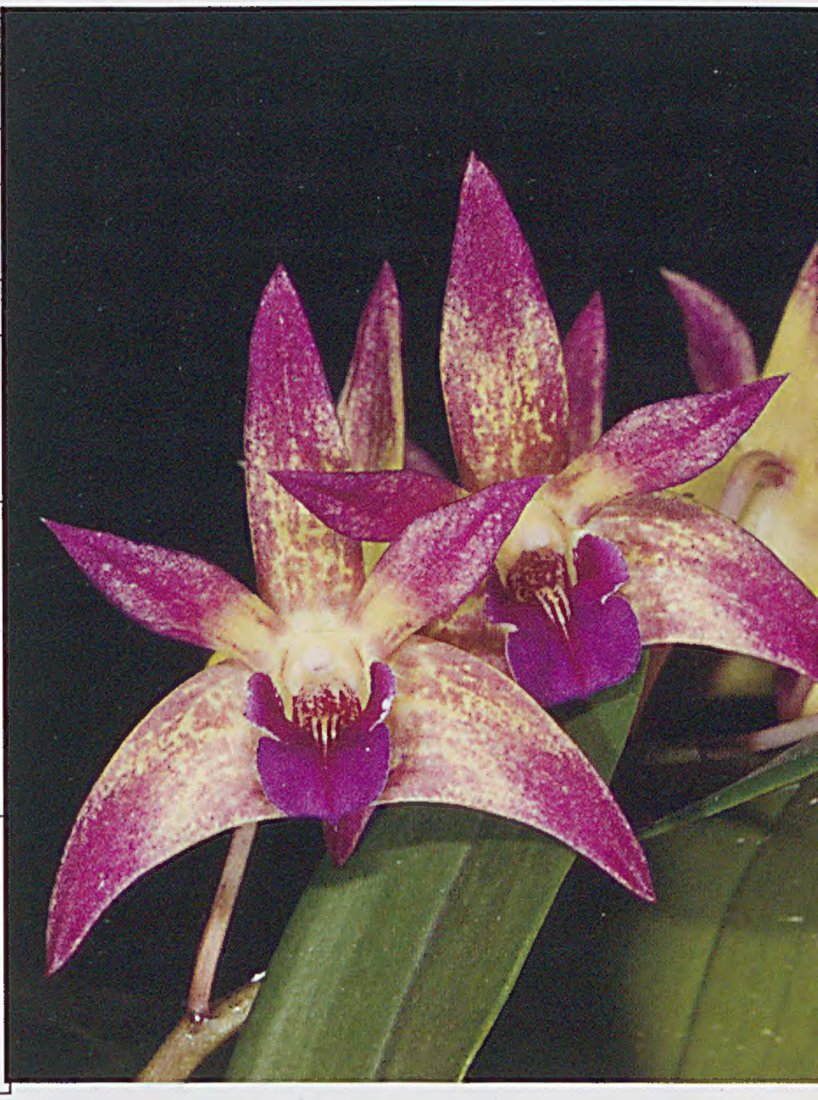
#244 Dendrobium Esme Poulton 'Cheryl' ACC/ANOS 2016

Points	81.4
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of: flowers inflorescences	 402 57
Measurements(mm): flower across vertical petal sepal dorsal labellum inflorescence length	
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	



#245 Dendrobium Binh Ba 'Exotic' HCC/ANOS 2016

Points	77.9
Owner	Henk van den Berg
Date	4 Sep 2016
Event	8th ANOS Conf. & Kempsey Spec.
Photos by	Bill Dobson
Number of: flowers number of buds inflorescences	 70 0 8
Measurements(mm): flower across vertical petal sepal dorsal labellum inflorescence length	 44 53 23L 5W 32L 13W 28L 9W 14L 10W 160
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	 19.9 16.3 11.9 7.8 11.2 11.0



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- **ANOS Central Coast**; PO Box 3010, Erina NSW 2250 - (02) 4340 5157 2nd Wednesday each month, 8pm. Narara Community Centre, 2 Pandala Rd, Narara 2250
- **ANOS Far North Coast Inc.**: PO Box 399 Ballina NSW 2478 - (02) 6686 6303 3rd Saturday each month (except December and January), 2pm. C.W.A. Room, River Street, Ballina.
- **ANOS Illawarra**: 2 Wilford St, 2 Wilford St, Corrimal NSW 2518 – (02) 4284 8308 2nd Tuesday each month, 7pm. Old Court House, Wollongong.
- **ANOS Macarthur and District**: 43 Strickland Cres., Ashcroft NSW 2168 – (02) 4681 8589 3rd Thursday each month, 8pm. Birriwa Community Hall, Fitzpatrick Rd, Mt Annan.
- **ANOS Mid-North Coast**: 69 The Lakes Way, Forster NSW 2428 - (02) 6554 9733 3rd Sunday each month, 12 noon, followed by BBQ. Contact secretary for location - Taree or Wauchope
- **ANOS Newcastle Inc.**: PO Box 4021, Rathmines NSW 2283 – (02) 4975 3729 4th Thursday each month , 7.30pm. Elermore Vale Community Centre, Croudace St, Elermore Vale.
- **ANOS Sydney Inc.**: 9 Alicia St, Glenwood NSW 2768 3rd Friday each month, 8pm. Senior Citizens Hall, B.H. Community Centre, Conie Ave, Baulkham Hills.
- **ANOS Warringah Inc.**: PO Box 421, Forestville NSW 2087 - (02) 9981 2525 3rd Tuesday each month, 8pm. Community Hall, Starkey St, Forestville

QUEENSLAND

- **ANOS Beenleigh Inc.**: PO Box 1130, Beenleigh QLD 4207 - (07) 3805 1973 1st Thursday each month, 7.30pm. Showground Hall, James St, Beenleigh
- **ANOS Kabi Inc.**: PO Box 424, Aspley QLD 4034 - (07) 3359 5752 2nd Tuesday all months except January, 7.30pm. Isabella Griffin Room, Strathpine Community Centre, 199 Gympie Road, Strathpine.
- **ANOS Mackay and District**: 24 Barton St, Mackay, QLD - (07) 4952 2186 2nd Thursday each month, Andergrove Community Centre, Celeber Drive, Andergrove.
- **ANOS Townsville Inc.**: 92 Curie St, Wulguru QLD 4811 - (07) 4778 4311 1st Tuesday monthly (excl. Jan.) 8pm Townsville O.S. Hall, Joe Kirwan Pk, cnr Bamford Lane & Charles St, Townsville
- **Native Orchid Society of Toowoomba Inc**. 106 Umbiram Rd, Wyreema QLD 4352 1st Friday each month, 7.30pm. Lutheran Church Hall, cnr West and Alderley Sts, Toowoomba.

SOUTH AUSTRALIA

- **Native Orchid Society of South Australia Inc.**: PO Box 565 Unley SA 5061 - (08) 8261 1550 4th Tuesday each month, 8pm. St Matthew's Hall, 67 Bridge St, Kensington

VICTORIA

- **ANOS Geelong Inc.**: 2 Cooper St, Melton South VIC 3338 - (03) 9743 6040 2nd Wednesday each month, 7.30pm. Uniting Church Hall, Yarra St, Geelong
- **ANOS Melbourne Suburbs Inc.**: PO Box 169, Bayswater VIC 3153 4th Wednesday each month (excl. Dec. & Jan.), 7.30pm. Montrose Primary School, Leith Rd, Montrose 3765
- **ANOS Victoria Inc.**: PO Box 308, Boronia VIC 3155 - (03) 9387 2771 1st Friday each month, 8pm. Toorak Uniting Church Hall, , 603 Toorak Rd, Toorak

WESTERN AUSTRALIA

- **ANOS Western Australia Inc.**: Mrs Lyn Morgan, 99 Bywater Way, Wilson WA 6107 - (08) 9451 2164 2nd Monday each month, 8pm. Wilson Community Hall, Braibrise Rd, Wilson

NEW ZEALAND

- **ANOS New Zealand Native Orchid Group** 42 Titiro Moanna Rd, Korokoro, Lower Hutt 5012

Dendrobium Dunokayla 'Stony' AM/ANOS 2016 (VIC)
Owner Michael Drobski Photo by David Adams